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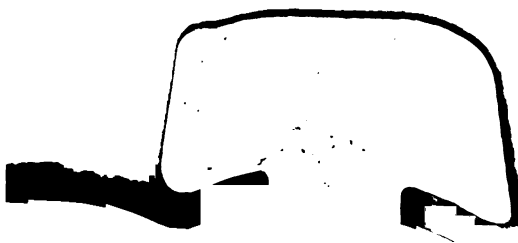
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# GUY'S HOSPITAL REPORTS.

*Second Series.*

EDITED BY

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SECRETARY TO THE CLINICAL SOCIETY.

J. H. BROWNE, AND A. POLAND.

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VOL. I.

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SAMUEL HIGHLEY, 32, FLEET STREET.

M DCCC XLIII.

LONDON :

—  
RICHARD WATTS, CROWN COURT, TEMPLE BAR.



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# GUY'S HOSPITAL.

## Medical and Surgical School,

SESSION 1843—1844.

COMMENCING ON MONDAY THE SIXTEENTH OF OCTOBER.

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MONDAYS, WEDNESDAYS, AND FRIDAYS,  
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One or more Sessions - - - - -	£ 2	2	0
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### CHEMISTRY:

**MR. A. ATKIN & MR. A. TAYLOR**,

TUESDAYS, THURSDAYS, AND SATURDAYS,

At Ten o'Clock.

One Session - - - - -	£ 6	6	0
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The Anatomical Pupils have the privilege of studying the Models by Mr. TOWNE.

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The Library, Reading Room, and the Museums, are open to the Pupils Daily, It is expected that the Pupils entering to the Practice of the Hospital will produce Testimonials as to their moral conduct and general acquirements.

*Mr. Stocker, Apothecary of Guy's Hospital,* is authorised to enter Pupils.

\*.\* Certificates will be given in April, unless forfeited by irregularity or non-attendance.

# INTRODUCTION

TO

## THE FIRST VOLUME.

---

**IF** any opinion of the wants of the Profession can be gleaned from the general spirit of its Members, and if any estimation of that spirit can be derived from the titles and subjects of publications, and the general tendency—at present so evident among us—to form societies for receiving and imparting the fruits of experience, we are fully justified in considering observation to be the governing principle of advancing medicine; and the “Hoc age” of the present period to be, “Ut vivas, vigila.” But it must be remembered, that however correct our facts, however trustworthy our modes of determining them, the progress of medicine must also depend on their comparison. The object, therefore, of any medical periodical, whose single aim is scientific improvement, should be twofold—the collection and publication of the results of observation—and the inferences which may thence be justly deduced. On this principle the present work has always been conducted; though the chief energy has been expended on fulfilling the second of these objects; viz. that of giving to the medical world the well-digested inferences of the result of observation in finished treatises. The course the “Reports” have run, has not been unaccompanied with difficulty; and though perhaps the goal aimed at may not have been reached, still the experience of the seven years which have been now completed—and

not, it may be hoped, without a certain amount of usefulness—may be received in evidence of the intentions of the Editors, and the success which has been the result.

We wish now to extend the sphere of this principle; and, in addition to the finished treatises, the works of individuals, with which hitherto our pages have been principally enriched, we propose to illustrate the different classes of disease by the aid of series of Reports, collected within the walls of the Hospital, and furnished by the books of the Clinical Society; and likewise, to apportion a part of each Number to the consideration of anomalous cases from the same source;—a plan we consider fraught with great advantage; as nothing has so great a tendency, either to counteract a too great confidence, or to stimulate exertion, as a proper estimate of our difficulties.

As one of our sources of matter are to be the Books of the Clinical Society, it is necessary to give a detailed account of its history, principles, and constitution.

The idea of forming a Society for the accumulation of Medical Reports taken at the bed-side of the patient arose first among the senior pupils; but to Mr. BLACKBURN, lately of Liverpool, belongs the honour, if not of originating, certainly of inducing a practical development of the plan. The CLINICAL SOCIETY commenced seven years ago, nearly about the time of the first publication of the “Guy’s Hospital Reports”; and it is a matter of some curiosity, that these two agencies, so similar in their tendencies, and so fitted for mutual assistance, should have sprung at one and the same time into existence, and yet have so long continued each a separate and independent course. But a glance at the history of the Society will shew, that although its primary object was the advancement of medical science, by the collection and classification of medical records, yet this seems soon to have given place to the necessity of first attending to the organization of the Society; a process slow, and

only to be accomplished by establishing, as an active principle, individual interest. At its commencement, a Committee was formed, an Honorary Secretary chosen, and regulations agreed on. Tables were drawn up, to facilitate the duty of reporting; the wards were variously apportioned; and the discipline of the Society was preserved by the same spirit that first called it into existence. But as time, plans for life, and, in some instances, the hand of death, removed from the ranks of the Society those first pillars of its support, the labour of reporting, with its heavy responsibility, devolved upon many of the junior pupils; while the seniors, for the most part, were satisfied with holding its places of honour. There was hereupon noticed a falling off in the execution of the work; and it was about this time that the objects of the Society seemed changed;—the idea of furnishing any statistical matter, or otherwise advancing the science of medicine, faded away; and all its influence was directed towards promoting the interest of the Reporter:—and upon this principle being tacitly acknowledged, a new life, as it were, was infused into the Society; and men, as the nature of the case might have led us to expect, entered zealously into the field, and, stimulated by their own immediate interest, gave the Society their whole support, performing the same duties, and almost with the same consequence, as were required when the officers looked only to the accomplishment of scientific improvement. This state of things was the cause of some regret among the well-wishers of the Society; yet to this very circumstance do we attribute not only its advancement, but its actual preservation; for hereby do we see its merits and capabilities becoming gradually appreciated and fixed upon the minds of the Students in general, and its supporters found among the most industrious and intelligent. And thus are we now on the point of again devoting ourselves to the accomplishment of the first object; viz. the accumulation and classification of medical

records. These are, as it were, the epochs and phases through which the Society has passed to its present condition—the sowing, rotting, budding of the seed : and throughout its progress it has received the prompt assistance of the Treasurer, as well as the encouragement of the other Officers of the Institution : for it must be confessed, that without this assistance the Society must long since have fallen to decay.

Such is a short outline of the past history of the Society ; and it is at this point of its progress that it has been thought advisable to form an union between these two agencies ; viz. that of collecting, with that of editing, medical reports. And we must now ask for a little indulgence, while we describe the constitution of the Society ; and endeavour to shew, that if the same fostering care be continued to us, we may shortly be enabled to present to the public the first-fruits of our labours.

The Clinical-Report Society rests almost entirely for support on the shoulders of the Students of the School. It is under the superintendence of a Committee, who select one of their number to fill the place of Honorary Secretary ; to whom more especially belongs the duty of immediately directing the affairs of the Society. An amanuensis is provided by the Hospital, to enter the reports, as soon as delivered, in books kept for that purpose ; and to which it has always been the wish to give every facility of reference. Every Student, upon admission to the Hospital, is generally recommended by one of the Medical or Surgical Officers to enrol his name as a member ; so that at the termination of his second, and during his third year, he might be prepared to give the Society his active assistance.

It is the object of the Society to secure an account of every patient admitted ; for which purpose the Hospital is divided into ten departments — four exclusively medical, four exclusively surgical, one mixed, and one obstetrical. The first division of the first department we generally

regard as a specimen, and call, *κατ' ἐξοχὴν*, the Clinical. It comprises a male and female ward; the latter of eighteen, the former of twenty-four beds. It is open for the six winter months, from November to April inclusive. Three Physicians, each for two months, are successively on duty; and under them are two sets of Clerks, each consisting of four, and officiating for three months. Of every patient admitted into these wards, a full report is taken by one of the Clerks, read before the Physician in attendance at or near the bedside of the patient; and commented on at a weekly lecture, in which the Physician points out the nature of each case, the indications of cure, and the several means of carrying these into operation. The remaining three divisions of this department are respectively under the three principal Physicians; and each comprises a portion of six wards, and requires three Clerks each, taking charge of a portion of two wards under one Physician; to whom, and the Clinical Society, he is responsible for the report of the cases. The number of Clerks, therefore, officiating in the first department is thirteen during the winter; but during the summer session the number is only twelve, in consequence of the clinical wards no longer remaining special, but coming under the immediate care of the Clinical Society; which appoints, instead of the four Clerks previously officiating, an extra Clerk to each of the three Physicians. The surgical department is rather differently arranged. There is at first a threefold division, according to the number of Surgeons; and each of them is again split into four sub-divisions, according to the number of Dressers or House-surgeons under each principal; and to these Dressers, or their substitutes appointed by the Society, is entrusted the charge of furnishing a record, more or less full, to be inserted with the medical records on the books of the Society.

In this department there is a fourth supplementary division, consisting of a male and female ward; the latter of ten, the



former of fourteen beds, exclusively devoted to ophthalmic diseases, under the superintendence of one or two Clerks. The third, or mixed department, consists of three wards, of smaller dimensions than those alluded to above, attended by the Assistant Surgeons and the Apothecary, and reported by a single Clerk. The fourth, or obstetric division, is under the Obstetric Physician, and reported in special books, by a single Clerk. The number of Clerks employed in the surgical department varies from twelve to sixteen; and in addition, there are two others for the third and fourth departments respectively, making the whole number of men engaged in Clinical Reporting, at one time, about thirty. The labours of the Reporters are so regulated, as to demand only such an amount of time as every Student, at the advanced period of his pupilage required by the Society, should devote to the practical prosecution of the studies of medicine and surgery; whether this be with a view to the qualifying himself for any of the several courts of examiners, or to the ultimate, and by far more important object, of fitting himself for the proper discharge of those duties which, in the pursuance of the profession, must devolve upon him.

But, in order to secure as far as possible the possession of the reports, and at the same time indirectly to stimulate the members reporting to the full completion of their work, a weekly meeting is held in a room appointed by the Hospital; where all the cases admitted since the previous meeting are mentioned; the inspections after death, and the operations performed during the week, detailed; and any subject of interest in the wards generally noticed;—so that this assembly forms the centre of all the clinical information of the Hospital; the Officers of the Society are enabled to detect any falling off among the Reporters; and these again are here encouraged to ask for the solution of any difficulty that may have occurred, or to offer any suggestions regarding the cases under

their care; while all who attend, either Officers or Members, reporting or not reporting, have, in these meetings, laid before them an epitome of the Hospital, where both matter of improvement and interest is sure to be brought before their notice.

But, further to provide against deficiencies in the reports, resulting from those occasional fits of idleness or indisposition, which among so large a class of men it is manifest must from time to time occur, the Hospital is divided into different circuits; and each put under the care of a member of the Committee, who is furnished with two tables, one for the admissions, the other for the results of all cases, which he is required to deliver to the Secretary at the weekly meetings.

The following are the plans of the two tables: and each table contains spaces for eleven cases, which is about the average number falling to the lot of each Committee-man.

### CLINICAL SOCIETY.

#### WEEKLY TABLE OF ADMISSIONS.

*Member of the Committee*—J. B. NEVINS.

*Physician or Surgeon*—MR. MORGAN.

*Dresser*—MR. AYRES.

*Reporter*—MR. FOSTER.

<i>Ward, and No.</i>	<i>Name.</i>	<i>Age.</i>	<i>Birth-place, Abode, Occupation.</i>	<i>Aspect, and General Health.</i>	<i>Date of Attack.</i>	<i>Symptoms of Disease.</i>	<i>Treatment, Medicine, Diet.</i>
Philip, 6.	Charles Maddox.	38.	Born and residing at Deptford: Labourer.	Pale: general health good.	7 years ago.	Hydrocele, and chronic enlargement of the tes- ticle: has been tapped seven or eight times: swelling has increased more rapidly, of late: the swelling elastic: not generally painful, but markedly so in one spot: veins of scrotum much dilated.	Paracentesis: an ounce of fluid withdrawn. — Tunica vaginalis injected. Mist. Salina 3 Vin. Colebic.

## CLINICAL SOCIETY.

## WEEKLY TABLE OF RESULTS.

*Member of Committee—J. B. NEVINS.*

<i>Ward, and No.</i>	<i>Name &amp; Age.</i>	<i>Physician or Surgeon, and Reporter.</i>	<i>Date of Admis- sion.</i>	<i>Outline of Progress of Case, with Treatment.</i>	<i>Date of Exit.</i>	<i>Result.</i>
Philip, 6.	C. Maddox, 38.	Mr. Morgan. Mr. Foster.	Jan. 25, 1843.	Hydrocele tapped and injected: no return of the fluid: after the interval of a week, symptoms of pyrexia, followed by rheumatic gout in the great toe, shoulder, and other large joints. The testicle gradually became less, and softer. The same treatment was continued to the end.	Feb. 28, 1843.	Cured.

In consequence of the tables being on separate sheets of paper, it is necessary to repeat the matter of the first four divisions of the second table. It is proposed, however, in the course of a short time, to have both tables on one sheet; so that the account taken on the admission of the patient will be on one side, while the progress and result will occupy a corresponding place on the opposite. There are arguments, however, in favour of both arrangements.

The discipline of the Society is further promoted by general meetings of the members holden every six months, at which one of the medical or surgical officers of the Hospital presides. The object of the meeting is, to enable the members to investigate the conduct of the Officers of the Society, and to hear the Report of the Committee. This generally comprehends a slight sketch of the progress of the Society; a notice of any alteration that may have occurred within the previous six months; and suggestions of improvement for the future regulations of the Society. But the substance of the Report consists of a digest of all the Cases, with their results, entered on the Books of the Society during the fore-mentioned period, classified according to a nosological plan, and arranged tabularly, as follows:—

<i>Name, and Age.</i>	<i>Ward, and No.</i>	<i>Physician or Surgeon, and Reporter.</i>	<i>Date of Admis- sion.</i>	<i>How long ill.</i>	<i>Disease.</i>	<i>Date of Erit.</i>	<i>Reference to Clinical Books.</i>	<i>Result.</i>
Patrick Stark, 40.	Lazarus, 4.	Dr. Babington. Mr. Roberts.	March 23. 1842.	18 months.	Pleuritic effusion — paracentesis thoracis. The serum which was drawn off was clear and straw-coloured, and co- agulated on standing — Pyrexia — Typhoid symptoms — severe cough.	April 14, 1842.	F. 639.	Death : no autopsy.

And appended, there is an Analytical Index of symptoms, classed according to the same plan as the digest of the cases.

But it must not be supposed, that, at the present time, a notice of every patient hitherto admitted into the Hospital is to be found on our Books; or, indeed, that, in very many instances, the notices are not meagre and insufficient: for such has always been, and we are fearful must still continue, to a certain extent, to be the case, at least while the Society remains but as an appendage to medical instruction: for indeed many of the Reporters are young, and necessarily inexperienced; and the Committee, though composed generally of old Students, or, more properly speaking, those who have completed their studies, and are remaining at the Hospital only with a view of profitably employing their time until some opportunity may rise up of forming and carrying into execution their ultimate plans for life, must, from the very nature of the case, be constantly changing. And it is occasionally found, as a consequence of this frequent change, that a man no sooner becomes acquainted with his duty, and there is every prospect of his proving a valuable member of the Society, than he is summoned into another sphere; leaving his uncompleted work to his successor, who may perhaps tread in the same steps, and with the same result. But we confidently hope that the weekly tables, which have but lately been adopted, will, to a great extent, lessen, if not entirely coun-

teract, the effects of this evil. But, conceding every objection, the Society is of great value; as it must be judged for the good that it does, and not for that which it leaves undone.—We think it advisable, however, to make these observations, lest our habits of speaking of a favourite scheme, and of considering its capabilities rather than its performances, may have led us to assume a tone inconsistent with the subject, and to have attached by far too great importance to an institution which must be at best imperfect. But still, we may be excused for indulging in a hope—it may be visionary—that the dormant capabilities of the Society may, at some future period, be called into active operation—that the acknowledged advantage of clinical reporting, which may be said, with but slight reservation, to be the only method of successfully studying clinical medicine, be secured to every Student, by it being made a necessary and prominent part in the general curriculum of study, even as it now is in the distribution of honours. And, as a step towards this condition of things, it has been suggested that the Society should be invested with a larger share of authority, by being placed more immediately under the guidance of one of the Officers of the Institution, whereby the Regulations may be more strictly complied with, and the discipline maintained.

The Officers of the Society have nevertheless acted according to the compass of their powers; assisted, in cases of difficulty, by the higher authorities. Their objects have been twofold—the accuracy, and the number of the reports. And these objects they have essayed to accomplish, by facilitating the duties of reporting: 1st, By the division of labour: and 2dly, By the introduction of formulæ for case-taking. The labours of reporting are of course to be diminished by the number of cases under the charge of each reporter. The whole number of patients in the Hospital at one time is generally about 450—the number of Clerks about 30; giving,

as a result, about 15 patients as the average complement of each Clerk: and, calculating that there are weekly from 55 to 65 admissions, the duration of each patient's residence in the Hospital would be about seven weeks. Each Clerk would therefore have to report rather more than two fresh cases every week—a number, considered as an average, and consisting of mixed cases, both mild and severe, simple and complicated; evidently in the power of any Student, at the requisite period of his studies, to do ample justice to, without neglecting his other subjects.

The subject of formulæ requires a more lengthy notice. The objects to be aimed at, in their formation, are, facility of reporting with uniformity, and increased value of the reports. The first object has certainly been attained, even by the full formulæ now in use by the Society. Indeed many have been induced by them to commence a course of clinical study, the difficulties of which they confessed they should otherwise never have surmounted. So we may pass on to the second item; viz. uniformity and accuracy of the report. In the first place, if cases are to be compared—and such is confessedly one of the main objects of their accumulation—uniformity is almost essential; and in order to uniformity, formulæ are useful, if not positively necessary. These may be full or short, general or special. We believe the fuller they are, the greater is the amount of value accruing both to the reporter and the Society; although, as a point of direct consequence, it must be allowed that the errors would probably be more numerous than in shorter forms, though this only holds good as long as no stride is made beyond the defined limit. The next object contemplated is the fulness of the report, with the accuracy of its details; and for this purpose the formulæ must be full, containing a place for every possible item; and yet so arranged, that the Reporter be not left in doubt under what head to note any particular symptom; and that space

sufficient be allowed for each head. Special forms, although perhaps of great value in the reduction of matter from a large collected body of reports, imply—so at least it appears to us—a greater advancement in medicine than it has hitherto been our lot to enjoy; for how few diseases can be logically expressed—how widely diseases vary, both as to the number and intensity of the symptoms—and how little hope are we at present justified in entertaining that any law regarding the constancy of symptoms is about to be divulged—though we may perhaps expect some result from the consideration of their variations, and the endeavour to determine their value from their relations. The formulæ introduced by the Society at its first institution were of too undefined a character; indeed, as far as regarded the most important features of a case, viz. the enumeration of symptoms at the period of admission, they afforded no assistance whatever to the reporter, and, accordingly, very quickly fell into disuse. But within the last year, it has appeared to the Officers of the Society, that that period of progress had arrived when their attention might successfully be directed to the accumulation and classification of medical records, and the application to them of the principles of statistics; but that, in order to its more complete fulfilment, the reports must be drawn up on one acknowledged system; in fact, the reports must be uniform;—and, as we have above stated, uniformity can scarcely be accomplished without the introduction of formulæ.

With respect to the construction of formulæ, the rule appears to be concentration of that portion of the report which is usually so indefinite; viz. whatever precedes the admission of the patient, or the first visit of the Physician;—with the expansion of that portion of which the Reporter can institute his own investigation; viz. the enumeration of the signs and symptoms, suggesting to the Physician the name of

the disease; which may be usefully considered as a condensed arbitrary expression for the sum of the symptoms.

The Formulæ we at present employ were suggested by the short forms used by Dr. Conolly, at the Lunatic Asylum at Hanwell; and brought therefrom, in the course of the last summer, by the Honorary Secretary. They have of course been much modified; inasmuch as they are intended for diseases in general, whereas the others are specially designed for one class. They may be divided into several portions, as follows:—

1. The relations of the patient with respect to the Hospital.
2. The previous history of the patient.
3. The causes of the disease, or the link between the previous history of the patient and the present history of the disease.
4. The history of the present disease, with the date and the order of the succession of symptoms.
5. The signs and symptoms of the disease, from the sum of which the diagnosis is to be determined.
6. The history of the progress of the case, with the treatment detailed.

And these again are variously sub-divided, as may be observed by casting the eye over the plan given below.



No.	Name of Disease	Result
Ward	Physician,	Date of Admission
No.	Reporter	
Name	Single or Married	No. of Children
Age	Occupation	
Previous History.	{ Abode Habits of Life General Health Previous Diseases or Injuries	

Causes or Influence.	{	Hereditary {	Health of Family
			Causes of Death in Family
	{	Moral	
		Physical	

History of Origin, with Date of Present Illness, and Order of  
Succession of Symptoms

#### Development

General Aspect.	{	Natural
	{	Morbid

#### Position

#### Integuments and Appendages

Temperature

Moist or Dry

Colour

Œdema

Pain or Tenderness

Ulceration or Abscess

Tumors or Eruptions

State of Appendages

#### Nervous System

Form of Head or Spine

Pain

Vertigo

Lesions of	{	Intellect or Disposition
		Motion
		Sensation
		Special Sensation

**Respiratory and Circulating System****Form of Chest****Pain****Voice****Respiration****Cough****Sputa****Results of Percussion****Results of Auscultation****Respiration****Voice**

Heart's {  
 Impulse  
 Rhythm  
 Sounds

**Pulse and General Circulation****Digestive System****Form of Abdomen****Pain****Appetite****Nausea****Vomiting****Tongue****Mouth and Throat****Defecation****Dejections****Results of Manipulation****Urino-Genital System****Micturition****Urine****Generative Functions****Lesions of Bones or Joints****Treatment**


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**Progress of Case**


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**Treatment****Report**

These several divisions and sub-divisions have been carefully formed, and, as far as possible, the logical principles of division and definition attended to—the head of each division considered as exactly equal to whatever is contained under it; as, for example, the previous history consists of, or is equal to, the abode, habits of life, general health, and previous diseases or injuries: and the like holds good of the remainder. But it has been thought advisable, for the sake of keeping prominent symptoms immediately under the eye, in some certain instances to allow a slight deviation from these rules; and to repeat some symptoms, as pain, under different heads; whereas others, in obedience to the rule, as numbness, only occurs under the third sub-division, comprehending lesions of the nervous system; inasmuch as this is generally a sign of an affection of the nervous centres or of the large trunks.

Such is the outline of the history of the constitution of the Clinical Society, and the principles upon which it is conducted. The description has much outrun the limits we had assigned it; but as it may possibly become an important implement in the future prosecution of this work, it was necessary to place a detailed account before our readers, that they might the better be enabled to pronounce an opinion upon the authority of our facts; and also for the reason, that any system, if good, must be confirmed by promulgation; and if deficient, overthrown.

Another source of valuable information is to be found in the number of inspections after death, and the public manner in which they are conducted. The value of facts thence derived, whether they confirm or refute previous notions, will not in this age meet with any opponent. All morbid specimens of importance, not previously in the possession of the Hospital, are carefully preserved, and deposited in the museum; which also contains numerous and skilfully-executed anatomical models in wax—the work of Mr. Towne.

About 800 out-patients attend weekly. Medical cases on the Friday; Surgical on the Thursday; where an opportunity is afforded of investigating those classes of diseases—of Infants for example—not generally admitted into the Hospital: and it has lately been attempted, in order to render this advantage more certain and tangible, to select a series of cases illustrative of one subject, to which the principles of reporting may be applied; and there is no doubt that, if persevered in, a similar benefit will accrue.

Connected with the Establishment is a Lying-in Charity; where women are attended at their own residences by qualified Students, with the aid, in all cases of difficulty, of the Obstetric Officers: and reports are preserved at the office, in which are mentioned the circumstances of each labour.

An arrangement has also lately been entered into for carrying on microscopic observations, by means of a powerful instrument, under the superintendence of an experienced and skilful observer.

These various advantages are alluded to, not so much in praise of the Institution to which they belong, as to prove to the members of the medical profession that we are indeed possessed of a valuable mine of information; and are, in consequence, justified in claiming their attention to our pages, as long as we continue honestly to furnish facts as they are;—never shrinking from the task we have set ourselves, but publishing all cases, whether successful or unsuccessful, if such publication tend either to the removal of error or the establishment of principles already acknowledged. We shall likewise give, as usual, the results of well-digested cases, embodied in separate treatises; and may endeavour occasionally to propound original views concerning some of the sciences connected with medicine: for upon these principles Medicine depends, even for existence; and upon these do we rely for the hope we entertain, that our labours may be instrumental in extending and cultivating its various fields.



CASE  
OF  
SUSPECTED IRRITANT POISONING,  
WITH  
REMARKS ON THE POISONOUS PROPERTIES OF CERTAIN KINDS OF  
DECAYED ANIMAL MATTER USED AS FOOD.  
BY ALFRED S. TAYLOR.

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IN December 1840, I was applied to by Mr Cooke, of Burford, Oxfordshire, formerly a pupil at this hospital, and very assiduous in his attention to medico-legal subjects, to investigate a case of suspected poisoning which had occurred in his neighbourhood.

Three members of the family of a shepherd—the wife, son, and daughter, the two latter being young children—were taken ill on Sunday, December 20th. The boy, who was about two years old, died the following day. It was supposed that poison had been administered to the family, and that this was the cause of the boy's death.

The poison was suspected to have been taken at dinner, about 11 A.M. on Monday, December 21st, when all three dined with the father, on some mutton. No satisfactory history could be obtained of the symptoms suffered by the wife and two children on the Sunday, the day preceding. The only account that could be obtained was, that the body of the deceased was swollen all over. The three were, however, better on the Monday. Having dined at the hour above mentioned, and the father having left for his usual work, they were not seen until about two o'clock, when the mother and daughter were in a state of insensibility, and the boy was dead.

The following account was obtained:—The father stated, that after he had dined with the family on the Monday at eleven o'clock, he felt, while at work, a sharp burning pain in his inside, for which he could not account. This was between the time of his leaving dinner and two o'clock in the afternoon. The mother, on her recovery, said that

she felt great pain after the meal; but no other account of her symptoms could be procured, except that she foamed at the mouth, and was in a state of great nervous excitement. As far as could be ascertained, she had suffered but slightly from vomiting, and there was no purging. The deceased and his sister were, however, affected both with vomiting and purging. The deceased child died in *less than three hours* after the meal, for he was found quite dead at two o'clock; but no satisfactory account of his symptoms before death could be obtained. It appears, however, that he was very much purged, and that his motions were of a dark-green colour. The matters vomited by him were very copious, and streaked with a yellow-coloured substance: these were, unfortunately, thrown away. The matter vomited by the mother is described as having had a bright glistening appearance, like quicksilver, on the surface.

The stomach-pump was applied to the mother about six hours after she was found (eight o'clock P.M.); and the contents of the stomach then drawn off were reserved for a chemical examination.

The following appearances were met with, on a post-mortem examination of the body of the deceased child (reported by Mr. Cooke):—

There was no particular appearance externally, except that the cutaneous surface was unusually pallid. The lungs were loaded with blood of a scarlet colour. The heart was natural: the liver of a pink colour, congested with very liquid blood. The stomach contained a small quantity of half-digested food, presenting, on its posterior part, several prominent rugæ, which were inflamed, with traces of inflammation on other parts of the lining membrane. The small intestines were inflamed in their upper portion; but the appearance of inflammation was less marked inferiorly. They contained a liquid mixed with blood. The muscular coat of the rectum was very red; but there was nothing in other respects abnormal, either in the large intestines or their contents. The peritoneum was highly inflamed. The bladder was contracted; and on its posterior wall were two spots of well-defined inflammation. The spleen and kidneys were healthy. About two ounces of bloody serum were found

in the cavity of the abdomen. The upper part of the larynx and lower part of the pharynx were inflamed; and there were traces of inflammation at the bifurcation of the trachea. The veins of the head were very full, as well as those on the surface of the brain. The brain was of large size, and well developed: its vessels were congested; but there was no morbid change of structure.

The contents of the stomach and viscera were collected, and forwarded to a chemist at Cheltenham for analysis. No trace of poison could be detected in them.

The suspicion of poisoning appears to have arisen from the sudden and violent illness of three persons after a meal, and the rapid death of one; as well as from the fact, that the man and his wife lived somewhat unhappily together, the woman having had an illegitimate child (the daughter, who also suffered) by another man. No account was furnished of the symptoms under which the daughter laboured; except that, like the deceased child, she was affected with vomiting and purging.

It was known that the husband, who was a shepherd, kept by him a quantity of arsenic and bichloride of mercury, which he was in the habit of using for the purpose of destroying the fly in sheep. It was therefore suspected that one or other of these irritant poisons, or some preparation of barytes, had been administered by him designedly; or that the poison might have become accidentally mixed with the food, and have thus given rise to the illness of all the parties, and to the death of the child.

But another explanation of the symptoms and fatal result was suggested. The mutton which the family had had for dinner on the Monday was part of the body of a sheep which had been affected with "the staggers," and which, in consequence, had been killed, and the meat distributed among many poor families in the neighbourhood. It was therefore not unreasonably considered that the very unwholesome nature of this food might sufficiently account for the serious consequences which had followed the meal. It is however worthy of remark, that no other persons of other families, who had freely partaken of the mutton from this sheep, were attacked, or experienced any ill consequences whatever.



This was the only family which suffered; although there were children in other families, of the age of the deceased, who had fed on the mutton without any ill effects following.

The mutton, on inquiry, was found to have been eaten on the Sunday, as well as on the Monday; and the illness of the parties began on the Sunday; but it was not until after the dinner on Monday that alarming symptoms manifested themselves. The meat had been salted by the wife; and had been kept covered over by a piece of tin-plate, which was in contact with it. It was considered not improbable, that, in salting the meat, some poisonous substance might have been accidentally used by the wife, or subsequently added by others; and that a portion of the suspected mineral poison might in this way have adhered to the tin-plate used as a cover. No part of the meat could be procured for a chemical examination; but a portion of the metal plate only was forwarded to me at the hospital. The surface of this was scraped; the scrapings and the plate itself were separately treated with successive portions of distilled water and other solvents for mineral poisons; but nothing soluble of a poisonous nature could be detected.

Mr. Cooke examined some substances found in the house, and suspected to contain poison, for arsenic, corrosive sublimate, and barytes; but there was not the slightest trace of any of these poisons in the articles of food and other matters examined. Mr. Cooke sent me a portion of the contents of the stomach of the child, as well as of some of the liquid drawn off the stomach of the mother by the stomach-pump; but, on examination, no trace of any kind of poison could be discovered in either case.

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From the facts above related, a medical opinion was required of the cause of death in this child. Death, it is evident, might be ascribed to one of three causes:—

1. To some mineral irritant poison mixed with the food.
  2. To the poisonous nature of the food itself; either from the animal having been killed while in a diseased state, or from the flesh having become partially decayed.
  3. To natural causes.
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1. *Mineral Poison.*—There were but vague moral grounds for suspecting that the symptoms and death were due to the admixture of an irritant poison with the food. The husband freely partook of the food with his family, and suffered, although slightly, from the effects: therefore it did not appear that any suspicion of the wilful administration of poison by him could exist. If the case were really one of poisoning, it could only be of an accidental nature. But, on examining the grounds on which the suspicion of poisoning was raised, we found them to be these: The sudden and severe illness of three persons soon after a meal, and the rapid death of one individual under symptoms of violent gastric irritation. The illness, it appears, began on the Sunday, the day on which the family first partook of the mutton: but this illness was not on that occasion very severe, nor does its connection with a particular meal seem to have been very clearly made out, although circumstances rendered it highly probable that it was really connected with the food taken: therefore, supposing mineral poisons to have been present, it must have been principally taken at the dinner on the Monday. Yet it must be observed, that neither the father nor the mother suffered from the usual symptoms of an active irritant; and it is pretty certain, that, from the large quantity of the food which, as adults, they would probably take, had there been any mineral poison present they would have suffered more severely from its effects. Vomiting and purging occurred in the children only, and more especially in the deceased child. These facts are certainly against the suspicion of any mineral poison having been taken at the meal. Besides, it is very unusual that these powerful agents (excepting oxalic acid) should destroy life in less than three hours from the time of the occurrence of active symptoms: and when death does take place with such rapidity, the presence of the poison in the stomach is almost certain to be discovered: but in the body of the deceased child no trace of poison could be found. On the other hand, it may be urged against this view, that violent vomiting and purging existed; and the poison may have become in this way discharged from the stomach before death. But it is by no means probable that the stomach should, by the mere act of

vomiting, have become thus freed of all traces of a mineral poison within the short period of two hours.

The whole account of the symptoms suffered by the deceased child before its death is very imperfect; and they are, to say the least, as much indicative of a fatal attack of cholera from improper food, as of the effect of an irritant poison.

Under circumstances of this description, the non-detection of any irritant poison in the food constituting the meal, or in the contents of the stomach of the deceased—presuming that ordinary care was taken in making the analyses—affords a strong presumption in favour of death from disease. Poison could here be admitted as a probable cause of death only by adopting as evidence, in favour of this view, circumstances which are commonly considered by medical jurists as adverse to such a presumption. There was nothing affirmative of the suspicion of irritant poisoning, either in the symptoms or chemical analyses: the most important evidence to bear out this view, namely, the detection of poison in the food or contents of the stomach, was wanting; and under circumstances where, had poison really been the cause, the detection of it might have been reasonably anticipated. The sudden access of violent symptoms of gastric irritation, in a previously healthy subject, after a meal, leading to death in twenty-four hours, combined with the fact that other persons in partaking of the same food had suffered under similar symptoms, is always a matter to excite great suspicion; but it must not be taken as conclusive evidence of poisoning, unless strongly corroborated by other circumstances.

The following case, which happened during the prevalence of cholera in London in the year 1832 shews that great caution should be used by medical practitioners in judging from circumstances of this kind:—

Four of the members of a family, living in a state of great domestic unhappiness, sat down to dinner in apparently good health. Some time after the meal, the father, mother, and daughter were suddenly seized with violent vomiting and purging; the stools were tinged with blood; while the blueness of the skin observed in cases of malignant cholera was wanting. Two of the parties died. The son, who was

known to have borne ill-will against his father and mother, and who suffered no symptoms whatever on the occasion, was accused of having poisoned them. A strict investigation took place before the coroner; but it was clearly shewn, by the medical attendant, that the deceased persons had really died of the malignant cholera, and that there was no reason whatever to suspect that any poison had been administered to them.

In this case it will be perceived that symptoms resembling those of irritant poisoning appeared suddenly in several individuals in perfect health, shortly after a meal. These are commonly set down as the usual indications of poisoning in the living subject: but it is evident, from the above-mentioned facts, that, in the application of such rules, the most cautious judgment should be exercised.

To return to the case under consideration.—The moral evidence in favour of the suspicion of poisoning by the husband was very slight. It amounted to some unhappiness between the parties; and this, in the opinion of the neighbours, was considered sufficient to fix a suspicion upon the husband. This suspicion received no corroboration from any other part of his conduct; and indeed it seemed to be removed by the fact, that on two occasions he partook of the food in common with his wife and family.

Post-mortem appearances, however strongly marked, do not of themselves furnish much evidence in favour of poisoning, where symptoms and a chemical analysis fail in confirming suspicion. This is well known to those who have had the opportunity of examining many subjects. Well-marked redness of the lining membrane of the stomach and bowels, and even the appearance of inflammation or its effects, are ambiguous, unless there be some strong evidence of the presence of poison in the viscera. In the collection of drawings preserved in the Museum of this hospital will be found several, more especially those marked 284, 285, 286, and 287, which shew, that not only may there be great redness of the mucous membrane of the stomach without any suspicion of poisoning, but that this redness may be found in cases in which, from the entire absence of symptoms of gastric disturbance during life, there could have been no

reason to anticipate the discovery of such a state of the stomach after death.

In the body of the child, the appearances which favoured the suspicion of poisoning were inflammation of the stomach and small intestines. In the stomach, the inflammation seems to have been partial, and chiefly confined to the prominences of the rugæ in the posterior paries. This, although a pretty constant accompaniment of irritant poisoning, is not sufficient, in the absence of other evidence on the subject, to justify such a conclusion. Had poison been discovered in the food partaken of, or in the contents of the organ, the connection of this inflammatory appearance with the usual effect of mineral irritants would have been sufficiently explained. It is very true, that a person may die from irritant poison, and the stomach be found inflamed, yet none of the substance may be discovered. Cases of this kind have been related in former Numbers of these Reports. They occasionally present themselves where there has been much vomiting and purging; but, allowing that they may occur, this cannot justify us in inferring, in a case otherwise obscure from the imperfect history obtained, that death was caused by a mineral irritant, and that its non-detection by chemical analysis was to be accounted for in the manner stated. In acting on such a principle, it is obvious that many cases of natural death would be pronounced cases of poisoning. On the other hand, in being too sceptical, we may incur the risk of occasionally pronouncing a real case of poisoning to be one of disease; but it is evident that this would be an error of far less magnitude than the former.

For the reasons assigned, it does not appear to me probable that the death of the child, and the illness of the other members of the family, were due to the admixture of any irritant poison of a mineral nature with the food.

*2. Death might be ascribed to the poisonous nature of the food itself, from the animal having been killed while in a diseased state, or from the flesh having become partially decayed. In short, the symptoms and death may have been due to the action of an animal irritant.*

It has been long known to medical jurists, that certain

kinds of animal food, when the animal is killed in a diseased state, or the food itself has become partially decomposed by putrefaction, are liable to produce all the effects of irritant poisons in the human subject. Owing to there being no proper system of Medical Police in this country, it is impossible to say how many cases of this kind may occur which escape public notice. We are chiefly indebted to continental writers for what is known in relation to the effects of noxious food. We are yet, however, scarcely in a position to generalize upon the subject, since the facts recorded are few in number; and the symptoms observed in those who have suffered from eating noxious food have been very different in their character and progress. It is well known that some varieties of shell-fish exert occasionally a very poisonous action on the body. Certain kinds of prepared food, such as sausages (more especially those made in Germany) and cheese, are liable to undergo spontaneous changes, by which an irritant poison appears to be generated. This is considered by some to be an empyreumatic oil, the result of decomposition: but it is difficult to say on what the action depends. It is, I believe, certain, that no recognised active poison has been separated from food of this description.

It is said that the flesh of animals overdriven, as well as newly-killed meat in general, is liable to produce violent gastric irritation, and even cholera. What the effect of particular epigastric diseases may be, it is not easy to determine, seeing that there is a great want of observations on this point; but as a general principle, I think we shall be justified in admitting that the flesh must more or less partake of this diseased state of the animal, and thus be unfitted to serve as an article of human food. Flesh of this kind is liable to become putrefied sooner than that of healthy animals; and its poisonous properties may, in a certain degree, be aggravated or brought out by this condition. With regard to putrefaction, it would appear that the flesh of the most healthy animal is rendered unwholesome by this process; but that the most severe effects are produced by that flesh which has only become *partially* decomposed; where, in short, fermentation has been recently set up. It is well ascertained, with respect to German sausages, that they

cease to be poisonous when decomposition is so far advanced that sulphuretted hydrogen gas is evolved. In many cases of poisoning by animal food, we shall probably find, on inquiry, that with a diseased condition of the flesh there was also incipient putrefaction.

I have not been able to find any case of poisoning from diseased or putrefied mutton or beef. Veal, pork, and bacon have, however, frequently given rise to alarming symptoms of gastric irritation and death. It will be therefore proper, before attempting to refer the cause of death in the case of the child here reported to improper food, to see how far the facts hitherto observed, with regard to the action of other descriptions of animal food, will assist us in forming an opinion.

*Veal.*—Dr. Christison relates the following case of poisoning by veal:—In the autumn of 1826, four adults and ten children ate at dinner a stew made with meat taken from a dead calf which was found by one of them on the sea-shore, and of which no history could be procured. For three hours no ill effect followed. But they were then all seized with pain in the stomach, efforts to vomit, purging and lividity of the face, succeeded by a soporose state, like the stupor caused by opium, except that when roused the patients had a peculiar wild expression. One patient died comatose in the course of six hours. The rest, being freely purged and made to vomit, eventually got well; but for some days they required the most powerful stimulants, to counteract the exhaustion and collapse which followed the sopor. The meat, they said, looked well enough at the time it was used; yet the remains of the dish which formed the noxious meal had a black colour and a nauseous smell; and some of the flesh which had not been cooked had a white glistening appearance, and was so far decayed that its odour excited vomiting and fainting.

Dr. Christison thinks that the body of the animal in this case had lain for some time in contact with water, and that it had begun to undergo the process of saponification. The adipocere produced may have fermented; and this may have led to the formation of the same poisonous principle as that which is produced in the fermentation of German sausages. The only certain fact, however, upon which we can

rely, is, that this veal acted like a narcotico-irritant poison, either from the flesh of the animal being previously diseased, from incipient decomposition, or from both causes conjoined.

Although this poisonous action of animal food has been observed to be connected more with the fatty than the lean parts of the flesh, yet it is by no means necessary for this action to follow, either that fat should be present, or that it should have begun to take on the adipoceros transformation. I extract the following from a Medical Periodical: the case was published in the *Journal de Pharmacie et de Chimie*, Aug. 1842:—At a public festival at Zurich, in the year 1839, upwards of 600 persons partook together of a repast, consisting chiefly of veal, roasted or in cutlets. At *variable periods* afterwards, nearly all of these individuals were taken ill; and in a week most of them were confined to their beds. They were affected with rigors, vertigo, headache, intense fever, diarrhœa, vomiting, and, in some instances, delirium. At a later period, an abundant flow of fetid saliva occurred, the interior of the mouth being covered with ulcers; and in many cases, after involuntary discharges of the fæces, great prostration of strength, and death, ensued. In these cases, the mucous membrane of the digestive canal was found softened, the intestinal follicles ulcerated, and the veins empty. It was afterwards ascertained that the veal, when eaten, had been in an *incipient* state of putrefaction. The great analogy between the symptoms produced by it, and those of typhus, was very striking; and it is further remarkable, that many of the persons who attended on the patients, though previously healthy, and who had not been partakers of the deteriorated food, were attacked by the disease.

In this case, the poisonous action of the veal was to be attributed to incipient putrefaction. The symptoms were those of a narcotico-irritant poison; and the exact period of attack after the meal appears to have been different in the different cases.

In the same journal, it is related that the following circumstance occurred recently in the Grand Duchy of Baden:—A roebuck having been taken in a net, was killed while making violent efforts to escape, and while in a state of the utmost terror and exhaustion. Nearly all the persons who



partook of the flesh of this animal experienced a violent gastro-intestinal inflammation, with other symptoms similar to those detailed above; although, in this instance, neither was the flesh in a putrefying state, nor were any of the cases fatal.

This last case bears out the remark already made, that the flesh of animals killed when overdriven or in an exhausted state is liable to produce symptoms of irritant poisoning.

Perhaps there is no kind of ordinary food so liable to give rise to accidents of this description as *pork*. Several cases were published a few years since by the late Dr. Mac Divitt, tending to shew the noxious effects of this substance. One of these, it appears, led to a strong suspicion of criminal poisoning.

The patient, a young man, conceived that he had been poisoned; and accused a woman with whom he lived, and her mother, of having administered something deleterious to him in tea, which he had taken three hours previously. The following were the symptoms under which the patient laboured:—There was an acute burning pain in the umbilical and epigastric regions, attended with almost constant vomiting of a dark-coloured fluid, which contained pieces of half-digested meat. He complained also of a dry, burning sensation in his throat. His pulse was weak and faltering; his extremities cold; and a cold perspiration covered his face and head. These symptoms, coupled with the well-known bad character of the young woman and her mother, led the medical attendant to suspect that poison had been administered. An emetic was immediately exhibited, which brought up some pieces of half-digested meat, with immediate relief to the pain in the epigastrium. The bowels were then acted on; and the pain in the umbilical region, which had begun to extend itself over the whole of the abdomen, was also speedily removed. On the next morning the patient was quite well.

On investigating the particulars of the case, Dr. Mac Divitt felt satisfied that these alarming symptoms must have been due to the effects of pork, since they bore the strongest resemblance to other cases of that kind which he had witnessed. He ascertained that the man had had for dinner,

that day, boiled pork, and the broth made from it. The pork had been salted five days; and the man had eaten of it once before, without experiencing any ill effects. He had dined at one o'clock on the last occasion, and the violent symptoms had appeared *seven hours and a half* afterwards. He referred them to the tea which he had taken three hours before. The young woman and her mother, who had dined with him, were not in the slightest degree injuriously affected.

In relation to this case, it is observed, that had the patient died under the attack—an event which, from the severity of the symptoms, could not have been regarded as very surprising—the two females might have been tried on a charge of murder. The notoriously bad characters of the accused—the terms of disagreement on which they had for some time before lived with the young man—his own conviction that they had administered poison to him—are facts which, taken together with the nature of the symptoms, might have appeared to a jury to form a strong and well-connected chain of circumstantial evidence. The negative results of experiments instituted with a view to detect the presence of poison in the stomach after death might not have been deemed conclusive of the innocence of the accused. At any rate, the fact, that the symptoms alone could not have been distinguished from those of irritant poisoning, proves sufficiently the importance of knowing that such a simple cause is capable of producing them.

Five cases precisely similar are reported. They were all relieved by the free use of emetics and purgatives. Dr. Mac Divitt observes, in summing up the results of his observations, that nothing remarkable could be discovered in the sensible properties of any piece of pork, the use of which had been followed by injurious consequences. The symptoms have resulted from boiled as well as from roasted pork, but more frequently from the latter. He never met with a case in which they had resulted from the use of bacon or of pork which had been salted for a longer period than three weeks. He conceives that it is chiefly, if not altogether, to the fatty parts of the pork that the pernicious effects are to be attributed. The symptoms may display themselves at any

period *within thirty hours* after the meal at which the pork has been eaten. It is rare that they commence until *three hours* have elapsed. The most careful chemical analysis has entirely failed in detecting any poisonous matter in pork, under these circumstances.

It will be observed, that there are some peculiarities about these cases of poisoning by pork, reported by Dr. MacDivitt. The symptoms were more decidedly those of irritant poisoning. Some hours (seldom less than three) elapsed after the meal, before they made their appearance: but the most remarkable points are, 1. That the food which exerted this poisonous action had been previously eaten by the same individual with impunity. 2. That other parties, who partook in common of this food, did not suffer any ill effects. It is difficult to suggest any explanation of these anomalies: they have led Dr. MacDivitt to adopt the view, that the pork could not have been in itself poisonous, but that it may have been rendered noxious during the process of chymification. If this explanation be admitted as correct, this must be regarded as another mode in which this kind of food may become poisonous to a human being. I am not aware that there are any other facts corroborative of this opinion: they can neither be referred to habit, nor easily to idiosyncrasy.

The effects of bacon in an unsound state are not very well known; but the following case, which occurred in London in 1836, excited some attention at the time, and the circumstances underwent a full investigation.

An inquest was held on the body a girl aged 15, who was alleged to have died from the effects of unsound bacon. The father of the deceased stated, that he and his family, including the deceased, had had the bacon for dinner with greens: he thought that it had a nauseous taste: he ate very little of the fat, and none of the lean. The deceased ate very heartily, especially of the lean part of the bacon. Soon after dinner he felt a burning sensation in his throat, and a disposition to vomit. About an hour after dinner his son was seized with pain in the stomach and vomiting. The deceased, who left the house shortly after dinner, returned about five o'clock, complaining of dreadful headache, and burning at her stomach:

she swallowed some tea, and went to bed; but nothing was ejected by vomiting. About this time, another child, aged 8, was attacked with similar symptoms. There were two other children, who had not partaken of the bacon, and they were not affected with any illness. He gave his children some calomel pills, which he procured at a druggist's; but no medical assistance was called in until after the lapse of a fortnight. The deceased was then removed to the Westminster Hospital, where she gradually sunk; and died about six weeks after the meal at which she had taken the alleged unwholesome food. The chief symptoms, when she was admitted into the hospital, were, pain in the epigastric region, and profuse diarrhœa. She became much emaciated before her death. On a post-mortem examination, the lining membrane of the stomach and duodenum were found slightly reddened. In the lower part of the small intestines, as well as in the colon, irregular patches of ulceration were met with. One ulcer had perforated the coats of the ileum, near the cæcum; and this had led to the effusion of the contents of the intestine, and had given rise to peritonitis, affecting the serous covering of the lower half of the abdominal viscera.

The bacon had been thrown away. Every one who partook of it suffered; but no one so seriously as the deceased. It was observed, on cutting it open, to have a nauseous disagreeable smell, but not at all like that of putrid meat. Upon further inquiry, it was found that the bacon had been sold by a regular dealer. No complaint had been made of its bad quality by others; but he admitted that the piece sold to this family was of inferior quality, compared with the other portions.

The bacon, in this case, seems to have acted as an irritant poison; and the symptoms of irritation were manifested very speedily after the meal. The circumstance of many persons having been attacked simultaneously with similar symptoms, from the use of the same article of food, in which there was not the least reason to suspect the presence of any mineral irritant, appears to me to prove that the symptoms must, in this case, be referred to the noxious properties of the food itself. It does not seem that putrefaction had taken

place, but it is not improbable that the same change had occurred in it which is occasionally observed in the fatty parts of German sausages. It was stated in evidence, however, that the deceased had partaken more of the lean than of the fat; so that it is probable the production of the poison, by fermentation, had extended throughout the whole substance of the bacon. Another fact appears, that the deceased eat more of this bacon than the other members of the family; and this will account for the severity of her illness and death. It does not appear, however, that her death was occasioned by the direct action of this noxious food: it was rather an indirect result, after a long period, depending upon ulceration and perforation of the viscera. There are many points in which this case resembles those of poisoning by veal, which occurred at Zurich. Ulceration of the intestines was found in both instances. This process may be set up from the continued action of any irritant, whether belonging to the mineral, vegetable, or animal kingdom; but it is only likely to occur where life is for some time protracted after the cause of irritation has been introduced into the alimentary canal.

It is proper to remark, that all the cases above related establish what has been often a subject of inquiry; namely, that the cooking of noxious animal food does not counteract or destroy its poisonous properties.

In some instances, the poisonous quality of the food is clearly referable to the disease with which the animal was affected when killed. This is especially the case in the epigastric disease called carbuncle, frequently prevailing to a great extent among cattle on the Continent. The following case appeared about a year since in the *Annali Universali di Medicina*, and has since been published in the *Edinburgh Medical and Surgical Journal*.

A heifer, which had two carbuncles on the buttock, was killed, and its flesh sold. It appears that about sixty persons partook of this, as food; and all were seized with the following symptoms—giddiness, trembling, shivering, violent cramps in the abdomen and limbs, vomiting and purging of a green bitter matter, intense thirst, sinking of the countenance, and delirium. The tongue was observed to be red at the tip, and

furred at the base. These symptoms were severe in proportion to the quantity of flesh of which each person had partaken. With one exception, all the patients recovered under the use of very simple remedies. In the solitary case that proved fatal, the symptoms were not different in character from those above described, but they were much more severe. The prostration of strength increased rapidly: there was loss of voice, and a soporific state ensued. This patient died on the second day after admission into the hospital. On a post-mortem examination, the body was found to be much emaciated; and there were livid spots scattered over the skin, especially over the lower extremities. The veins of the dura mater were filled with blood, and the spinal marrow was somewhat softened. In the abdomen, the liver had a tendency to softening, and the spleen was diminished in size. There was submucous ecchymosis, occupying about two-thirds of the greater curvature of the stomach; a similar ecchymosis near the cardiac orifice; and spots of the same character were found at intervals over the whole surface of the intestines.

In this report, it is not stated at what time the symptoms came on after the meal, nor how long a time elapsed before death, in the case of the person who was poisoned. It is probable that the patients were speedily conveyed to the hospital, and therefore that death occurred in about forty-eight hours. In this disease, it is said that the flesh of the animal is rendered so poisonous, that the mere handling of it is liable to occasion formidable symptoms. Both the solids and liquids of the animal appear to become poisoned, under its influence.

We may now compare the symptoms observed in the family who had partaken of the diseased mutton with those instances just reported of poisoning by various kinds of animal food. I could not obtain any satisfactory account of the state of the mutton: it was the shoulder and part of the neck which had been used at the meal. It had been previously partially salted; but that, of course, would not counteract any change which had already taken place in it, either from disease or putrefaction. That the sheep had been affected with a disease commonly called the 'staggers' is undoubted; but in what degree this existed, and how long its flesh was exposed before

it was used as food, is uncertain. One fact, however, is placed beyond dispute; namely, that the flesh was already in a diseased state, and therefore more liable to putrefaction. In what way this disease in sheep affects the flesh of the animal it is difficult to say; yet it is quite possible that it may acquire properties resembling those of an irritant poison. But supposing that the flesh should not acquire noxious properties from the mere effects of disease, its greater proneness to decay might always render it dangerous as an article of food. It is impossible to say within how short a period after death some animal irritant poison may be generated in such flesh, from spontaneous changes. It was clearly ascertained that there was no other article used at the meal by this family, upon which suspicion could fall.

That the illness of the family was due to some common cause of irritation cannot, I think, be doubted; and that this was in some way or other connected with the food taken, appears to me to be established by the evidence. There is no account of any of the family having been ill before the Sunday, the day on which the mutton was first eaten; although, from the appearances met with in the body of the deceased, it is probable that it had been previously ill; for some of these appearances could not be referred to the action of any irritant substance taken into the stomach. Reasons have been already assigned why it does not seem probable that the symptoms were due to the action of any poison introduced from without. Indeed, the only irritant poisons to which the symptoms could be in any way referred, are, arsenic, corrosive sublimate, oxalic acid, and some of the salts of barytes; but we may, I think, consider, that the use of any of these substances has been clearly disproved by the facts already stated.

We are, then, driven to the admission, that the source of irritation must have been in the diseased mutton itself. On the two occasions on which this food had been taken, the members of the family were seized with illness: on the last occasion, most severely. Among the symptoms, we find swelling of the body in the deceased child—insensibility in the mother and daughter—foaming at the mouth—great nervous excitement—burning pain in the stomach expe-

rienced by the father—vomiting and purging in the two younger children. The symptoms occurred very soon after the meal; and the death of the youngest child within three hours afterwards. Slight, and necessarily imperfect, as this account is, it seems to me that the symptoms approximate more to those of an animal than to those of any mineral irritant with which we are acquainted.

The post-mortem appearances presented nothing characteristic. Had any mineral irritant been the cause of such violent symptoms and rapid death, it is pretty certain that the effects would have been much more strongly marked in the stomach and upper part of the alimentary canal. But some of the appearances, as it was just now observed, could hardly be referred to the action of any irritant. Thus the peritonitis, with inflammation of the larynx and pharynx, probably pre-existed, and were due to other causes.

Some objections may be fairly raised to the view here adopted. Thus it is commonly said, that in poisoning from decayed meat the symptoms are very slow in appearing—that they seldom appear until at least three hours have elapsed from the time of the meal. In poisoning by sausages, it is reported that the symptoms rarely shew themselves until from twenty-four to forty-eight hours. In the case quoted by Dr. Christison of poisoning from decayed veal, three hours elapsed before any symptoms appeared; and Dr. MacDivitt considers this as the minimum period for their appearance in poisoning by pork. In this case, the symptoms must have come on very soon after the meal.

I would beg to remark, in answer to any objection of this kind, that well-recorded instances of poisoning by diseased or decayed meat are not so numerous as to allow us to draw any inference for or against this form of poisoning from the time of the occurrence of symptoms. It was formerly laid down as a rule, that poisonous fungi seldom began to act until from eighteen to twenty-four hours after they were eaten; but the fallacy of this assertion has been shewn by some cases lately published by Dr. Peddie, in the *Edinburgh Medical and Surgical Journal*. In some of these, the symptoms from fungi shewed themselves within half an hour after the poison was swallowed. So, with regard to meat poisoning,



we may at once appeal to reported cases, to shew that the symptoms may take place speedily after the meal. In the Zurich case the symptoms are stated to have come on at variable periods. In the case related of poisoning by bacon, the symptoms occurred very soon after the meal; and this fact alone warrants us in asserting that the rapid supervention of the symptoms in the case here reported does not present the smallest objection to the origin here assigned to them.

Again, it is said death is not a very usual consequence. Dr. Mac Divitt did not meet with an instance of fatal poisoning by pork, even where the symptoms produced were of a severe character. The fatal effects in all such cases must, however, depend upon numerous circumstances—the quantity of the noxious food taken, as well as the age and constitution of the subject. Death may proceed from the direct or indirect action of the food. Thus, in one case of veal poisoning, already related, the subject died comatose in six hours: in another case of bacon poisoning, death did not take place for six weeks; and then it seemed to have arisen from ulceration of the bowels with its sequelæ. It is highly probable that a young and delicate child would suffer more, *cæteris paribus*, from the effects of decayed or diseased meat than a strong and vigorous adult: and if the party be already labouring under any other disease, the effects are likely to be more severe. In the case before us, the fatal effects of the mutton on the deceased, a child only two years of age, and evidently at the time labouring under other disease, is an event which need not create surprise; although death took place more rapidly in this than in other cases.

An apparently strong objection to this being a case of meat poisoning consists in the fact, that other parts of the same sheep were eaten by other families, where there were young children; and yet, so far as Mr. Cooke could ascertain by diligent inquiry, no bad effects had arisen from the use of the food. This might appear to be at once sufficient to set aside the view taken of the cause of death, and to shew that the mutton could not have been poisonous. It is, however, necessary for a medical jurist to remember, that, admitting the existence of some common cause of irritation at the meal, affecting the whole of this family, and irreconcilable with

any of the known phenomena produced by disease, he is reduced to the supposition, either that poison was introduced *ab extra*, or that this particular article of food acted as such. If, from the fact above stated, we assert that the meat partaken of by this family could not have been poisonous, we are only substituting one difficulty for another: for, according to the above analysis of the evidence, it does not seem possible that any kind of mineral poison should have been present. And how then, it may be inquired, are the remarkable symptoms produced simultaneously in all, at each time after partaking of this food, attended with the death of one member of the family, to be accounted for?

In attempting to offer an explanation of this singular fact, namely, why one family only should have suffered, while others escaped, I must beg to refer to the anomalies sometimes observed in the action of animal irritants. It is well known that muscles, and other shell-fish, act as poisons to some individuals, while they do not affect others injuriously. These effects are referred, and perhaps with propriety, to idiosyncrasy;—the food is assumed to be the same, but to act differently on different constitutions. That one family only should be affected by eating this mutton can hardly be referred to idiosyncrasy; at least, in the absence of other proof, it would be too great a violation of probability to make such an assumption. But if the difference of effect did not depend on peculiarity of constitution in the affected family, we must adopt the only alternative; and suppose, that, although apparently the same kind of food, and taken from the same animal, there must have been some difference in its properties. For the satisfactory solution of this question, it is unfortunate that there were no means of examining and comparing the portion of the sheep taken by this family with those parts taken by others. It is natural to suppose, that the disease under which the animal laboured affected all the parts of its body equally. And admitting this supposition, as well as that its poisonous properties depended only on its diseased condition, we should expect that its flesh would be equally injurious to all who fed on it. If, in the diseases of animals, one part of the flesh become more affected than other parts, we have no proof of it: such a result is only

liable to be discovered by its effects as food; for no chemical analysis would serve to indicate the existence of such a difference. And here I would suggest, that the exhibition of a portion of the suspected food to dogs or other animals would often serve to throw light upon this very obscure subject. It is thus that the general poisonous effects of some muscles (shell-fish), and the innocent properties of others, have been determined. It would appear to be scarcely justifiable to assume that the disease in the sheep had affected only that part of its flesh which had fallen to the lot of this family; and yet, on the other hand, if we suppose every part of the animal to have been in an equally diseased state, and that it was to this diseased condition that the symptoms and death in one family were owing, we shall be driven to refer the fact of poisoning to idiosyncrasy—a condition in which a substance harmless to most people is rendered deleterious to others. This latter hypothesis, for reasons already assigned, it is equally difficult to admit.

May not some change have taken place in the portion of diseased mutton allotted to this family before it was eaten, owing to incipient decomposition? The process of decay does not take place with equal rapidity throughout every part of an animal; and the case of bacon poisoning, above related, proves that a change may go on in the same article of food by which one part of it will become poisonous and the other part remain wholesome. I will suppose, as indeed most probably happened, that a great number of families were served with portions of this side of bacon, but that illness and death in one family only occurred: how would a medical jurist have dealt with such an anomaly? He could not have referred the effects to idiosyncrasy in this particular family. It seems to me that he would have been compelled to adopt the view here suggested, that, from incipient decomposition, one part of the food might acquire a poisonous character, while the remainder would be sound and wholesome. There are certainly difficulties about such an explanation, owing to our ignorance of the manner in which animal irritant poisons are generated by fermentation; but these difficulties do not appear to me to be so great as those which present themselves when we refer all such occurrences to

idiosyncrasy. Had the bacon or the mutton, in the cases reported, been eaten by other families, or given to animals, it is in the highest degree probable that serious symptoms would have equally followed. We must remember, also, that changes of this description, in food, are not determinable either by chemical analysis or by a physical examination. The substance may not be, in the common sense of the word, putrefied: it may have a nauseous or faint odour, but its dangerous properties are only likely to be brought out by its being used as an article of food. Besides, we are so entirely ignorant of the manner in which the animal poison is generated, that it is impossible for us to say, *à priori*, what part of a diseased animal, or of a particular article of food, is liable to become deleterious through early decay.

Cases of this description are necessarily beset with difficulties; and we may even meet with facts less explicable than those above related. In one of the cases reported by Dr. Mac Divitt, a young man suffered alarming symptoms of irritant poisoning from boiled pork: others, who partook of the same food with him, suffered no ill effects. So far, therefore, no difficulty presents itself, because pork is well known to act injuriously on many persons; and the circumstance might be readily explained by idiosyncrasy in the individual who suffered. But then comes the anomaly, that the same kind of food had been previously eaten by the same individual without any ill effects resulting. How is such a case to be explained? By admitting the existence of an intermittent idiosyncrasy; or by declaring, that in the former case, where the food produced disturbance, poison must have been present? Neither explanation would be satisfactory; and the last might be absolutely contrary to fact. It is sufficient for a medical jurist to know, that such anomalous cases do occur, and that there are none more likely to create a suspicion of criminal poisoning. The knowledge of their occurrence, and the great difficulty which exists in explaining them, even where no suspicion of criminality on the part of any person can arise, will place him on his guard, and prevent him from assuming too hastily that poison must have been administered, and that there is no other way of accounting for the violent symptoms and death.

3. *To natural causes.*—I have already anticipated what may be said under this head. The connection between the symptoms suffered by this family and the food taken is, it appears to me, plainly established by the facts. Symptoms of disturbance occurred in all the members of the family, on two successive occasions on which the same kind of food was eaten; and at an interval of time after each meal which could leave but very little doubt of the connection. Besides, I am not aware that there is any disease, occurring suddenly in a family previously healthy, which would be attended with like symptoms. As I have already observed, the post-mortem examination shewed that the deceased child was labouring under acute disease of a severe form; and it is probable that this aggravated the effects of the vomiting and purging, which followed the meal of noxious food, and led to its death.

From the preceding facts and observations, it will be seen that, setting aside the question of mineral poisoning and natural disease, there are only three ways in which the symptoms and death of this child, and the illness of the other members of the family, can be explained.

(1) That the effects were due to idiosyncrasy; the diseased mutton not possessing any injurious properties, but being rendered poisonous by peculiarity of constitution in this family.

(2) Admitting that there was no such peculiarity of constitution, that the disease in the sheep had especially affected and rendered poisonous that particular portion of the flesh which had been taken by this family.

(3) That the effects did not depend on idiosyncrasy, or on the disease with which the sheep was affected; but that decay had commenced in the portion of it assigned to this family, and that thereby an animal irritant poison had become generated.

Of these hypotheses I am inclined to adopt the third, as being in some measure supported by certain facts detailed in this Paper. None of them can be considered unobjectionable: and, as an objection to the explanation which I am here inclined to adopt, it may be fairly urged, that the same change might have been expected to take place in other

portions of the diseased flesh. I can only suggest, in answer to this, that it is not apparent whether the flesh assigned to this family was originally in the same state as the other portions of the animal, or whether it had been kept by them for a longer or shorter time, before it was eaten, than by the others. Even supposing that no difference existed in these respects, still it must be borne in mind, that we are in entire ignorance of the circumstances under which these animal poisons are generated by incipient decay: and one fact related renders it highly probable that the same portion of flesh may acquire noxious properties in one part, while the remainder may undergo no change.

OBSERVATIONS  
ON  
PELVIC TUMORS

OBSTRUCTING PARTURITION.

WITH CASES.

(*Continued.*)

BY JOHN C. W. LEVER, M.D. F.S.S.

**I**N a former Number of the Reports\* I made some remarks on those tumors which implicate the pelvis itself, as well as those organs and structures concerned in the birth of the child. I proceed now to the Second Division of the subject; viz. The consideration of those tumors which belong to or implicate the parts in the neighbourhood of the birth-passages. This division will include—*A.* Tumors of the ovaries. *B.* Tumors of the Fallopian tubes. *C.* Tumors of the rectum. *D.* Tumors of the bladder. *E.* Tumors in the cellular tissue of the pelvis: and, *F.* Those varieties of pelvic hernia which may and do occasionally offer an obstruction to the course of natural parturition.

*A. Tumors of the Ovaries.*

The ovaries are obnoxious to various diseases and displacements: thus, there may be inflammation and its consequences; there may be encysted dropsy; the ovary is liable to be affected with specific and malignant tumors; and lastly, it may be displaced or dislocated. Inflammation of the ovary may be either acute or chronic; and may cause induration, softening, or suppuration of the organ. An interesting case of labour, obstructed by ovarian abscess, and ending in death soon after delivery, is related by Dr. Ingleby, at p.124 of his "Facts and Cases." It occurred to Mr. Wilton of Gloucester. Such a result seldom or ever offers any serious obstruction to the process of labour. The ovary is liable to be attacked with the encysted form of dropsy: of this there

\* For April 1842. Vol. VII. p. 71.

are several varieties. (See Guy's Reports, vol. III. p. 179.) The specific tumors of the ovary are of three kinds—fibrous tumors, osseous and cartilaginous tumors, and scrofulous or tuberculous tumors; while, lastly, malignant tumors of the ovary are of two kinds—cancer, and melanosis.

The ovary is liable to become displaced; and when displaced, it may either remain in the pelvic cavity, or it may escape externally. Displacement of the uterus, as anteversion or retroversion, may disturb the situation of the ovary; whereas, in procidentia or inversio uteri, its natural position is much more displaced. In most cases, those displacements are but temporary—ceasing when the uterus is restored to its normal position; but if inflammation occur, morbid adhesions may take place—gluing the ovaries in their unnatural situations, and rendering them incapable of being restored to their original position. The condition of the ovary itself frequently leads to its misplacement: thus, it may be the seat of encysted dropsy, or it may be affected with some of those diseases to which I have already referred: these may cause it to sink below its natural level in the pelvis; or, as the tumor progresses in size, and rises above the pelvis into the abdominal cavity, so also will the ovary be lifted up. In some cases, the enlarged ovary falls into the recto-vaginal pouch, forming a serious obstacle to the progress of labour. The second division of displacements includes those in which the ovary escapes out of the pelvis, and forms a proper hernia of the organ. It has been found to form the contents of an umbilical hernia: it has passed through the ischiatic notch: it has formed the contents of both femoral and inguinal hernia; while, descending into the labium, it has caused the appearance of the testicle in the scrotum.

When pregnancy is complicated with enlargement or misplacement of the ovary, it is of great importance to ascertain the extent, situation, size, shape, density, and connections of the obstruction. The enlarged ovary may be seated above the brim of the pelvis, or it may descend into that cavity occupying the side corresponding to the ovary affected: in other cases, although the ovary descends into the pelvic cavity, its mobility is so great, that there is no difficulty in



lifting it up, and in placing it above the brim, as was done in Cases 34 and 35.

Where the tumor is of the congested form, large, and confined to the abdomen, it may produce lateral obliquity of the uterus; and so render the labour tedious, preventing the presentation from entering into the brim, as in Case 34. Sometimes the enlarged ovary falls into the recto-vaginal pouch, and thus forms a serious obstruction to the progress of labour: this occurred in Case 38. A similar case is related by Dr. Merriman, in the Tenth Volume of the Royal Medico-Chirurgical Society's Transactions, p. 55. When the ovarian tumor occupies this situation, it is usually inclined to the right or left side, corresponding to the ovary affected. In the Second Volume of the London Medical Repository, No. 19, a case is mentioned by Jackson, entitled, "A Case of difficult Parturition from a Dropsical Tumor occupying the Cavity of the Pelvis." In this case, the tumor was seated behind the rectum; but it is very rare for an enlarged ovary to occupy this situation.

Ovarian tumors, complicated with pregnancy, vary in size, from that of a small ball or orange, as observed in Case 35, to that of a child's head, as in the cases related by Busc. In Gräffe and Walther's *Journal der Chirur. und Ahlkte*, tom. III. Hest. 3. No. 5. p. 422. a case of a woman, 30 years of age, rickety and scrofulous, is related by Hofer, in which the ovarian tumor weighed thirteen pounds ten ounces. This woman was delivered of a dead child by Dr. Schmalzing, by means of the forceps. In some cases, the tumor has been found to occupy the whole pelvic cavity, as in the case related by Jackson, already referred to. In the case of Mrs. Daly, related by Dr. Merriman (p. 240), this tumor, when forcibly pushed backwards, did not permit him "to gain a clear space of quite an inch of conjugate diameter." This contraction of space is further shewn by Case 38.

It is of great importance to ascertain the firmness and consistence of these tumors. In some cases, fluctuation is so distinct, that no doubt can be entertained of their nature: in other cases, fluctuation may be so obscure, that we cannot accurately determine their character, without making an exploratory puncture. In short, I am of opinion, that, in all

tumors of this kind, impeding labour, we are justified in assuring ourselves of the nature of the tumor before proceeding to perform the operation of embryotomy. This opinion is strengthened by the perusal of the case which occurred to Mr. William Birch of Burton-under-Needwood, and which Dr. Ingleby has published at p. 126 of his "Facts and Cases."

The diagnosis of ovarian tumor, when complicated with labour, is not always a very easy matter. In some cases, we may have had the patient under our care previously to impregnation, as in Case 34; or soon after pregnancy has taken place, as in Case 37: but, on the other hand, we may not see the patient until she is in labour, when that process is found to be obstructed by some tumor; and we are called upon to decide not only the nature of the obstruction, but also to determine the best means of effecting delivery, as in Cases 38 and 39.

In forming our diagnosis, we must be guided by the history, situation, and shape of the tumor. If an examination be made before the child's head has descended into the pelvis, or if there be no adhesions and the tumor be moderate in size, its displacement and reposition may enable us to determine its nature. If the tumor be encysted, it is elastic, soft, and fluctuating, becoming more tense during the uterine efforts; or by them it is urged into the pelvic cavity, or the child's head is pressed against it, which took place in Case 38. But otherwise, whether it be of a non-malignant or malignant nature, uterine pains will not increase its tensility, neither will it become flaccid when the efforts cease: in short, the only effect produced by the pain is a forcing down of the tumor *en masse*; so that, in order to arrive at a correct diagnosis, we should examine the tumor both during and in the absence of pains. Exploration already referred to should be made in every case in which doubt exists, before we proceed to destroy or even risk the child's life. The history of the examination of the case, both *per vaginam* and *per anum*, will, I think, in every case, enable us to decide the obstruction to be ovarian; for if due caution be employed, it can neither be mistaken for disease of the uterus nor vagina. The cases which are most likely to be confounded with ovarian tumors

are those in which encysted or other tumors are developed in the cellular tissue, between the rectum and the vagina; but this is but of little consequence, as the treatment in both cases is founded upon the same principles.

The prognosis of labour complicated with ovarian tumor may be considered in a twofold point of view: first, as it regards the mother; and secondly, as it regards the child. In both cases, it must mainly depend upon the size, seat, mobility, and nature of the obstruction. If the tumor be small, if it chiefly consist of fluid, or if we are able to return it above the brim of the pelvis, there is little or no danger to be apprehended, either to the mother or the child: but if the tumor be large, solid, firmly adherent, and if it occupy the cavity of the pelvis, the operation of craniotomy will very probably be necessary; and the difficulty in performing that operation, as well as the injury the parts may sustain during the delivery, will render the recovery of the mother a question of great uncertainty: or, lastly, the labour may be so protracted, that the patient may die of exhaustion. Puchelt, who has collected together thirty-one cases, mentions but one (that related by Buse) in which the woman died undelivered, although he alludes to several which proved fatal after delivery, either from exhaustion or inflammation. Our prognosis, therefore, must be based upon the nature, size, and mobility of the obstructing tumor. Of the thirty-one cases related by Puchelt,

1 died without being delivered;  
 14 died soon after delivery;  
 3 died from other causes; and  
 13 recovered.

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31

Dr. Merriman states that, out of eighteen cases,

9 women died;  
 3 . . . . recovered imperfectly;  
 while 6 . . . . recovered perfectly.

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18

With regard to the child, our prognosis will depend on the same causes that influence us in determining that of the mother.

Puchelt states, that—

21 children died before delivery ;

2 . . . . . after delivery ;

7 . . . . . were born alive ;

while in 2, the result is not stated.

In Dr. Merriman's cases, the still-born children amounted to 16, and those born alive to 4.

1. *Treatment.*—If the ovarian tumor be so seated that it offers but little obstruction to the birth of the child, or if it admit of a degree of compression sufficient to permit the head to pass, the natural efforts may be equal to the completion of the labour. In some instances, where the tumor is caused by dropsy of the encysted form, the tumor is altogether above the pelvis, and, so soon as the head is engaged in the pelvic cavity, the labour goes on naturally: but owing to the obliquity of the uterus caused by the tumor, the first stage of labour is lingering, as the head, or presenting part of the child, does not enter the brim of the pelvis in the most favourable manner: this is seen in Case 37. In all ovarian tumors, whether they are situated above the pelvis, or whether they are placed in some degree within the cavity, we should give full trial to the natural efforts; at the same time taking care not to defer our assistance too long, as the injury the soft parts may sustain may lead to fatal results, as took place in Case 36. There are many other cases on record: for in Park's Third Case, published in the Second Volume of the Royal Medico-Chirurgical Society's Transactions, and in Howlett's Case, recorded in the 17th Volume of the same Publication, p. 226, the children were delivered without artificial assistance, but the women died exhausted a short time after delivery. Madame Lachapelle relates a case in which, although the mother gave birth to the child at the seventh month of utero-gestation, the labour was followed by fatal results.

2. *Reposition.*—In some cases, the tumor may be placed above the brim of the pelvis, out of harm's way, until the head has entered the pelvic cavity, when no obstruction is then to be apprehended: this was done in Cases 34 and 35. There is no difference of opinion amongst accoucheurs as to the expediency of this mode of procedure, when it can be

done. Burns, Beclard, Lachapelle, Baudelocque, and others, concur in recommending it. Our efforts at reposition will sometimes succeed, even under unfavourable circumstances. An interesting case is related by Dr. Ingleby, at p. 136, in which the attempts at reposition ultimately succeeded. In this case, the Cæsarean operation had been determined upon by four practitioners, but persevering attempts to push up the tumor towards the posterior part of the right iliac fossa were at last successful; when the uterine efforts coming on violently, the head of the child came down and occupied the place from which the tumor had been raised, and fresh contraction was followed by the birth of a living child. Another case of peculiar interest is related by Behrind, in the *Allgemeines Repertorium der Medicin Chirur. Lit. des Aulandes*, 1807. Vol. III. No. 22. p. 344. In this case, the tumor descended between the head of the child and the brim of the pelvis: it was replaced, and the infant was born alive. The ovary, which was affected with encysted dropsy, was some time after extirpated, and the patient did well.

3. *Puncture, or Incision into the Tumor.* — Dr. Merriman states, that in six cases, out of those recorded by him, the tumors were opened; in three, the labour was left to nature to complete. Two of the women recovered, but the other remained for a long time in an ill state of health: two of the children were preserved. In the remaining three cases in which the tumors were opened, the use of the perforator was afterwards necessary: one of the women died, one remained in an ill state of health for eighteen months and then sank under her sufferings, while the third recovered. Dr. Ingleby is an advocate for the operation; and the case recorded at p. 126, which I have previously referred to, shews how likely even experienced medical men are to be deceived by the mere feel of the tumor. In this case, the sensation conveyed to the finger was that of an osteo-sarcomatous tumor: it felt precisely like a large mass of cartilage: it was not softer in one part than another: there was no fluctuation; and it was not harder during the pains than during their absence; but still, when a long curved trocar was introduced into the tumor through the rectum, about seven ounces of a clear straw-coloured viscid fluid, which proved to be

albuminous, escaped through the canal: and although this was not followed by the natural expulsion of the child's head, still it rendered the operation of artificial delivery much more easy: and in Case 36, the tumor was supposed to be a solid body. I have before stated that, in my opinion, in every case, we ought to perform the operation of puncture before we have recourse to the more serious operation of embryotomy.

If the contents of the tumor are too thick to pass through a canula, an incision may be made: this was done in a case published by Mr. Evans of Belpar, in which a jelly-like substance was extracted. Much discrimination is necessary in selecting the part in which the puncture should be made: some advise it to be made *per rectum*, for the reason that wounds in the vagina are less likely to heal, on account of the continual passage of the lochia; while, on the other hand, there are others who object to the puncture by the rectum, supposing this canal will be considerably irritated by a fistulous wound. In Case 38, I punctured the tumor through the vagina with a lancet, which, in Dr. Merriman's opinion, gave a greater facility to a more complete evacuation of its contents. Mr. Park (Vol. II. of the Medico-Chirurgical Society's Transactions) is of opinion that an opening into the tumor from the vagina is the proper mode of treating encysted pelvic tumors obstructing parturition. If incision be determined upon, of course it must be performed through the vagina.

4. *Extirpation of the Tumor.*—The consideration of this operation is of great importance. If the tumor be of such a size or nature that its contents may be evacuated or lessened by the operation of puncture or incision, the operation of extirpation should not be entertained: neither, in my opinion, are we justified in resorting to extirpation, if we can deliver the child with the aid of the embryospastic instruments. But if they are inadmissible—if the tumor be so large, firm, and adherent, that, by its bulk, it prevents the descent of the child's head—by its incompressibility, it does not yield to pressure—by reason of its solidity, its contents cannot be discharged, either by the operation of puncture or incision—and by its confined and fixed position in the pelvis, it cannot be replaced—then I am of opinion that the operation for

extirpation is called for, and justifiable: and in this opinion I am supported by Dr. Merriman, who says, "I am disposed to believe, that when the tumor in the vagina occupies a large space, it would be a more warrantable practice to remove it by excision if it consisted of a solid substance; and certainly to puncture it, if it contained a fluid, rather than expose the child to certain death, and the mother to great hazard by employing the perforator."

5. *Turning*.—The operation of turning, recommended and practised by some accoucheurs, does not appear to me justifiable. If the tumor be so compressed that the hand can be readily introduced for this purpose, it is far better to wait, and trust to the natural efforts, or to evacuate the fluid contents of the obstructing tumor: for the operation of version must be attended with some degree of violence and risk; and indeed, should we succeed in passing our hand and bringing down the feet, the greatest difficulty will be experienced in the delivery of the shoulders and head. In five cases related by Dr. Merriman, the labour was terminated by turning the child: all the children were lost, and but one of the mothers recovered.

6. *Delivery by Means of the Embryospastic Instruments*.—In Case 39, delivery was completed by means of the vectis. Dr. Davis, in his *Elements of Operative Midwifery*, relates a case in which the woman was artificially delivered, but who afterwards died from puerperal fever. Other obstetric writers speak of employing the forceps; but, in my opinion, these cases are not generally suited for this mode of artificial delivery; for if instruments be required, they are generally those which evacuate the tumor, or remove at once, or those which lessen the size of the child and reduce it to the size of the contracted opening through which it has to pass. Indeed, the use of the embryospastic instruments, in these cases, must at all times be attended with more or less danger, from the mischief they are likely to occasion to the soft parts of the mother. The blunt hook has occasionally been employed to assist in the delivery.

7. *Cephalotomy*.—Six cases are recorded by Puchelt in which the operation of cephalotomy has been had recourse to. Of these six, but three women recovered. Dr. Merriman

states, that in his eighteen cases "the perforator was used five times, after a longer or shorter duration of labour." Of these women, three died; another recovered very imperfectly; and one got well. The perforator was had recourse to also in three cases after the tumor had been opened, one of these women died, one remained in an ill state of health for eighteen months and then sank under her sufferings, while the third recovered. The unsuccessful results of other cases in which perforation has been employed confirms me in the opinion I have previously expressed respecting the operation for extirpation.

8. *Cæsarean Section*.—I believe there is no case on record in which the operation of Cæsarean section has been had recourse to in labour obstructed by an ovarian tumor. In the case of Mr. Birch, to which I have already alluded, four surgeons coincided in the opinion that the Cæsarean section was necessary before the tumor was punctured from behind: still, there may be cases in which gastro-hysterotomy would be perfectly justifiable.

9. *Operation for inducing Premature Labour*.—It is a matter of no inconsiderable importance to determine, whether in a woman the subject of ovarian tumor, and whose last labour has been attended with no ordinary difficulty, the operator should or should not induce a premature expulsion of the uterine contents. It is true, that in most non-malignant tumors there is usually more or less fluid, which may be allowed to escape by means of puncture or incision; but still, even this evacuation may be but partial, and admittance to the child's head may still be refused. In determining this question, we should use our best endeavours to make out the correct diagnosis of the tumor, as to its nature, situation, and changes. Again, the pelvic space should admit of the passage of a living seven-months' child; for if it should be too contracted, the object of the operator will not be attained. If, therefore, we find the tumor solid, firmly fixed in the pelvis, and not permitting reposition—if from our examination we are convinced of the impracticability of using the embryospastic instruments—then the operation for the induction of premature labour may be had recourse to.



## CASE 34.

MRS. T—, a delicate strumous-looking woman, 29 years of age, was under my care for twelve months before her marriage, which took place eight months since. Her friends had previously consulted me with respect to the propriety of the proposed union, as, from a considerable spinal curvature, they were afraid deformity of the pelvis existed. About three months previous to her marriage, she requested my opinion respecting a tumor in her left side, which, upon careful examination, I pronounced ovarian; and, notwithstanding that I advised her to put off her wedding for a time, she married secretly, and in four weeks became pregnant. Nausea, sickness, and the other accompaniments of the pregnant condition, were very distressing; and the two former yielded only to two-drop doses of creasote. As pregnancy advanced, the ovarian tumor also increased; so that, by the time she had reached the eighth month, I thought it prudent to institute a careful external and internal examination, in order to ascertain the size, consistence, and mobility of the tumor, and so determine what were the chances of safe delivery, or whether premature labour should be induced. There existed a lateral obliquity of the uterus, caused by the projection of the ovarian tumor, which was of the size of the head of a seven-months' child: it was moveable, and, externally, no fluctuation could be detected. Upon making a vaginal examination, the tumor could be felt in the upper and left side of the vagina, easily moved: the impression of indistinct fluctuation could be conveyed to the examining finger, when firm pressure was made on the tumor externally. The dimensions of the pelvis appeared to be normal; and after duly weighing all the circumstances of the case, I decided upon permitting her to go on to the full term of gestation. The mobility of the tumor led me to hope I should succeed in placing it above the pelvis, out of the reach of pressure; whilst the evidence I had of fluctuation caused me to anticipate, that should I not succeed in this, I might readily let out the fluid contents of the cyst *per vaginam*, and thus, in a great degree, remove the cause of obstruction. In due time, her labour came on: its first stage was protracted and tedious, from two causes—the early discharge of the

liquor amnii, and the obliquity of the womb itself; but as the labour progressed, I was enabled, with a little management, to raise the tumor above the brim of the pelvis. The labour-pains, which were frequent and violent, soon forced the head into the pelvic cavity; and the labour was completed after nine hours' duration, the child being born alive. On the third day after delivery there was some tenderness over the region of the tumor, accompanied with symptoms of febrile excitement; for which, leeches, warm cataplasms, a purgative, and some antimonial saline medicine, were ordered: these symptoms quickly subsided, and in three weeks from the time of her accouchement she was out of her bedroom. After she had suckled her child for three months, her constitutional powers were evidently beginning to fail; but no persuasion could induce her (by nature a very obstinate woman) to feed her child. The consequence was, that, with the impairment of her general health, the ovarian tumor began to enlarge; so that, in eight months from the period of her confinement she was as large as before her delivery. After the usual palliative remedies had been tried, paracentesis was had recourse to in 11½ months from the time of delivery. For two years and a half she lingered out a miserable existence; and died of peritonitis, after undergoing the operation of paracentesis for the fifth time. No post-mortem examination was allowed; but I am inclined to believe the other ovary was also diseased, as there was a tumor in its locality, and the patient had not menstruated since her confinement.

## CASE 35.

S. S— came to me at Guy's Hospital, to request I would induce premature labour at the seventh month; stating, that it had been accomplished, on two previous occasions, by a practitioner in the neighbourhood; the cause assigned being the existence of a tumor on the left side. The first premature labour was induced in May 1834; the last in December 1835. Six weeks previous to her last confinement, she suffered very much from pain in her left side; and was confined to her bed for five weeks after her delivery, from numbness and weakness in her left leg. Premature labour seemed to have been induced by the exhibition of the ergot

of rye, as she stated she took medicine "very much like coffee-grounds." The last child, when born, was black, and lived but a quarter of an hour. She complained of considerable and constant pain in her left side, extending to the left leg, which was so weak as to impede progression. Before complying with her request, I made a very careful examination. I found the abdomen enlarged, evidently from the presence of two tumors; one of which was situated obliquely to the right, of the size of the uterus in the seventh month of pregnancy; and the sounds of the foetal heart and uterine souffle proved that the uterus was the enlarged viscus. To the left of the uterus, extending upwards, a rounded tumor could be detected, dull on percussion, affording no sense of fluctuation, painful on pressure, and causing a desire to pass the urine when direct pressure was made. Internal examination found the pelvis of rather large size; the os uteri placed obliquely; and to the left side of the os a tumor could be felt, which the right hand placed upon the region of the abdominal swelling proved to be one and the same, as an impulse could be communicated from one hand to the other by means of the tumor. The tumor was moveable, and could readily be raised above the brim. Under these circumstances, I resolved to allow her to proceed until the completion of the full term of utero-gestation. Her labour was of six hours' duration: the os uteri dilated painfully and slowly, on account of the premature expulsion of the water; but when this was accomplished, the tumor was supported above the brim until the head was engaged in the cavity of the pelvis, when the labour was quickly terminated. The child was born alive, and the patient recovered without any bad symptom.

#### CASE 36.

(The following Case was related by Mr. J. H. ROBERTS of St. John's Wood.)

Mrs. M——, a widow, the mother of three living children, was taken in labour at 11 A.M., in January 1834. At 4 P.M. the gentleman in attendance pronounced that every thing was proceeding favourably; but upon examination, the left foot was found low down in the vagina, with the toes towards the pubes. The pains were irregular and inefficient,

although it was stated they had been energetic. When they returned more vigorously, an attempt was made to turn the child's abdomen towards the sacrum of the mother, in order to facilitate the birth, and protect its life. This effect was thwarted by a firm, solid body, projecting into the upper portion of the vagina; and so narrowing the passage, as to oppose an effectual obstacle to an alteration of the position, or to the further progress of the labour. The patient at this time was exhausted by her efforts; her pulse became quick, skin hot, &c., indicating a necessity for speedy delivery. Suddenly, however, she complained of something giving way; and, on examination, it was found that all vestige of the tumor had disappeared, and that a black foetid viscid fluid had been discharged, probably amounting in quantity to thirteen or fourteen ounces. The delivery was shortly afterwards effected, although retarded by a slight antero-posterior contraction of the brim: the child was still-born. For an hour or two after delivery she appeared to rally; but there was still a continual draining of the same dark offensive fluid from the vagina. On the following day she exhibited symptoms of collapse, with great pain in the left iliac and lumbar regions. No water having been passed, a catheter was introduced, and about four ounces of urine were drawn off; and, in spite of treatment, she continued gradually to sink, and died on the evening of the second day.

Upon post-mortem examination, no traces of peritoneal inflammation were found. The uterus was contracted to the size of a foetal head, and there was no discernible lesion in it. The left parietes had suffered pressure from the proximity to the tumor. There was found a large cyst, emptied of its contents, growing from the ovary; and which, when distended with fluid, would have occupied a space between the floating ribs and the cavity of the pelvis. The parietes of this cyst, in their lowest portion, had come in contact with the upper and left part of the vagina; and probably, by the pressure of the gravid uterus, had been detained there, till, by the successive processes of inflammation and ulceration, they had adhered to, and had actually discharged their contents through the vagina. The vagina in this part was in a gangrenous state, and communicated by an opening (effected

during the labour pains) with the cyst; and it was doubtless this rupture which occasioned the disappearance of the tumor and the black fœtid discharge.

#### CASE 37.

In September 1833, a woman was admitted into Guy's Hospital, under the care of Dr. Bright, complaining of a tumor at the lower part of the abdomen, which she stated had increased rapidly within the last three or four weeks. She had been sensible of its existence for seven or eight years previous to her admission. She had been married two years, but had not been pregnant. The catamenia had always been regular, and her bowels generally open. On the 24th January 1834, the tumor was found to have changed its form, especially within a few days, projecting in its upper part to the right side; and she was sensible of occasional motion within it. She had no great inclination for food: her catamenia had not appeared since her admission into the hospital, and her breasts were tender and enlarged. As the term of her pregnancy grew on, the sounds of the fœtal heart and the uterine souffle were distinctly and readily heard. On 26th May, at 6 P.M., I was called to her. I found there had been pains throughout the night, and that they now returned at intervals of about ten minutes. The os was dilated to the size of a shilling, but placed obliquely to the left side of the vagina. The first stage of the labour was very lingering, owing to the oblique position of the uterus, and the rigid state of the os; for it did not dilate until 4 P.M. Before the dilatation of the os uteri, the tumor could be felt at the upper and left side of the vagina, but it did not project into the pelvic cavity. The child was expelled at 9 P.M.: some little resistance was offered by the perinæum, which was rigid and unyielding; but this rapidly gave way, on the application of hot fomentations. After delivery, the uterus contracted well; and the ovarian growth could be defined, occupying the left side of the abdomen. On 31st May, her convalescence was protracted by the size of the tumor becoming considerably increased, and by its being very painful on pressure, which rendered the employment of leeches and hot cataplasms necessary. On 8th June, the tumor, although smaller and less

firm, gave evident signs of fluctuation on the left side. This sense of fluctuation was, on 15th June, evident throughout.

CASE 38.

On Sunday, 19th January 1840, I was called to the assistance of Mr. Newth of Great Suffolk Street. I found this gentleman was in attendance upon a Mrs. Colston, 28 years of age, who was in labour with her fifth child. Her previous labours had been remarkably quick; indeed so rapid, that upon one or two occasions the child was born before the arrival of the surgeon. Mr. Newth was called to her at 7 A.M.; and found that labour-pains had commenced twelve hours previously: and on examination, he detected a tumor projecting into the vagina, impressing him with the idea that the rectum was full of feces. The os uteri was felt above the tumor, nearly dilated, and the head of the child presenting: the pains occurred at regular intervals, and were tolerably strong. He advised her to take a dose of castor-oil immediately. At 1 P.M. the oil had operated well; and on making examination, the tumor was found to be pushed lower down: an enema was now administered, which acted very speedily. Introducing his finger into the rectum, Mr. Newth found the tumor was situated between the rectum and vagina: and on further examination, it was felt to contain a fluid; and to the left side there seemed to be a firm body, impressing the examiner with the idea that it resembled in feel the upper extremity of a fœtus.

The pains were now very strong, and the patient had but slight intervals of ease. Mr. Newth having requested my opinion of the case, I attended; and found the tumor, as large as a fœtal head, occupying so much of the pelvic cavity, that the finger could with difficulty be passed between the tumor and the symphysis pubis; and on examining her rectum, the coccyx could not be passed. Her pains were very violent, and frequent. I advised the evacuation of the fluid contents of the tumor; thinking, that if this were done, sufficient room would be obtained for the birth of the child, without diminishing the head. Having guarded a common lancet, I made an opening into the tumor through the vagina, when upwards of a pint of an oily fluid immediately escaped, the sides of

the tumor collapsed, the pains continued, the head rapidly advanced, and in two hours from the time of operating she was delivered of a living male child, and the secundines. On placing the hand on the abdomen after delivery, the uterus was found perfectly contracted; while, on the left side, the firm tumor, which formed part of the contents of the sac, could be felt. The evacuated fluid, when cold, resembled dripping.

After her confinement, no remarkable symptoms occurred until the twentieth day after delivery, when she complained of a considerable degree of forcing when she passed her motions. These symptoms led Mr. Newth to examine her *per vaginam*; when the tumor was again detected between the rectum and vagina, and exceedingly tense.

I am informed by Mr. Coulthred of the Southwark-Bridge Road, that he has attended this female in a subsequent delivery, and that there existed no obstacle to the progress of the labour.

Mr. Newth furnished me with some of the substance evacuated from the tumor; which I submitted to my friend Dr. G. Owen Rees, for analysis. In a note to me, he describes it to consist of "an albuminous membrane, inclosing fatty matter and cholesterine, with blood adherent."

In some remarks made by Dr. Merriman, in laying the case before the Royal Medico-Chirurgical Society, he says, "The tumor was opened through the vagina, and with a lancet; which, I presume, gave greater facility to a more complete evacuation of its contents." And again, "Upon the whole, this case may be considered as favouring the opinion of Mr. Park (Second Volume of the Medico-Chirurgical Transactions), that an incision from the tumor into the vagina is the proper mode of treating encysted tumors in the pelvis, obstructing parturition."

#### CASE 39.

I was requested, 13th June 1839, to see a woman who had been in labour for eight hours, and in whom labour had come on at the eighth month. I found that the labour was protracted for want of pains; the head resting upon the perinæum, where it had been seated for two hours. The

attendant informed me the patient had a tumor situated on the left side; which, however, did not appear to have interrupted the labour, beyond the production of some obliquity of the uterus. The os uteri had dilated, but slowly; and before the head had passed through, it was much elongated from side to side. The tumor he considered to be ovarian, and solid. Upon making an examination through the abdominal parietes, I could feel the tumor in question, solid, firm, conveying no resonance on percussion, and not admitting of much motion. As the patient was becoming exhausted, I administered some stimulus, and waited to see the effect of this on the uterine action; but as the pains did not recur, I introduced the vectis, and accomplished the delivery without any very great difficulty. The child was extracted alive.

*B. Tumors of the Fallopian Tube obstructing Parturition.*

Various tumors are found to be developed in the Fallopian tubes, which by their obstruction may lead to the protraction of the labour: thus, there may be abscess, the result of acute inflammation, dropsy, and tumors, both of the non-malignant and malignant form. Cases of this kind occur but seldom. I have never met with such.

One case of the kind is recorded in the Eighteenth Volume of the *Journal de Médecine, Chirurgie, et Pharmacie*, par M. A. Roux, Jan. 1763, p. 69. The case occurred to Chambry de Boulage, who has described it under the title of "*Observations sur une ossification irrégulière trouvée dans la trompe droite d'une femme morte en travail d'enfant.*" De Boulage was called to the assistance of a woman, 36 years of age, who had been married two years, and during the whole of her pregnancy had made no complaint. The woman had been in labour for ten days, and several neighbouring surgeons had vainly striven to render her assistance. Having made an examination, he found the internal genitals gangrenous, as also the thighs as far as their centre: in the pelvis he discovered a very hard round body, irregular on the right side, and situated under the symphysis of the pubes: the vagina also was perforated. Near this substance the bones of the fetal head could be recognised, separated by decomposition; many of which he took away. Seeing the woman was mori-



bund, De Boulage did nothing; and in a very short period of time, after his visit, she died. The body being opened, and the uterus dissected, a tumor was discovered on the right Fallopian tube, covered by membranes, about nine fingers' breadth in circumference, and weighing about seventeen ounces. The membranous coverings being removed, the nature of the tumor was found to be osseous, its lamellæ being not unlike those of the cranium; and in whatever situation they were fractured, they displayed a spongy texture. When the tube is affected with swellings or tumors, it is found to leave its natural situation, and to occupy the pelvis below the pubic bones, but inclining more or less to the side where the tumor grows. If such a case should present itself to the accoucheur, the tumor should, if possible, be placed above the brim of the pelvis; but if this be impossible, it may be punctured, to permit the discharge of its contents: but if they be of so tenacious and thick a nature that they will not flow through a canula, then an incision may be made, in order to empty the containing sac. But if the tumor should be solid, and the pelvis seriously obstructed, we shall have to decide between the performance of the operation of cephalotomy and Cæsarean section. During the performance of the latter, we may possibly be able at the same time to remove the obstructing tumor.

### *C. Tumors of the Rectum obstructing Parturition.*

1. *Tumors of the Rectum from Impacted Fæces.*—That labour may be obstructed from the accumulation of fæces in the rectum is noticed by the oldest writers on obstetricity. This may be seen by referring to the brief history appended to the First Part of this Paper, published in the Guy's Hospital Reports for April 1842. This obstructing cause of labour is alluded to by almost every recent obstetric writer of note. Of course, the size of this tumor must vary according to the quantity of impacted fæces; and, consequently, the obstruction to the passage of the child will be in proportion. The form of the tumor is oblong and firm: its situation is central, following the course of the bowels, which occupies the curve of the sacrum. The diagnosis of this tumor is by no means difficult; for a vaginal examination detects the obstruction

to be firm, oblong, and taking the impression of the finger when pressed upon it; the diagnosis being readily confirmed by an examination *per rectum*.

If the patient be interrogated, we, in most cases, find that the bowels have been locked up, or barely evacuated, for some days. This double examination is necessary, to distinguish the swelling from that caused by the falling down of an ovarian tumor in the recto-vaginal septum from those tumors which form behind the bowel itself, and from that scirrhus hardness to which the gut is liable. Patients who are sufficiently attentive to the state of their bowels during the latter weeks of pregnancy are not troubled with this obstruction during labour.

The treatment necessary in the management of such obstructions is obvious. The administration of emollient purgative clysters will generally remove the cause of obstruction; when labour will, in most cases, terminate propitiously. In the two cases here appended, some of the hardened feces were scooped from the rectum before the clyster-pipe could be introduced. It is neither necessary nor sufficient to give purgatives by the mouth; as, in the first place, their action is not sufficiently quick, and the hardened state of the feces frequently altogether prohibits their purgative effect. Their administration also, under these circumstances, is generally attended with the production of intestinal pains, which may as well be avoided.

2. *Scirrhus*.—The rectum is occasionally the subject of scirrhus, which may prove to be a cause of obstructed labour. One case only have I seen in which this disease of the bowel was the cause of the protraction of the labour. The symptoms which marked the progress of this case, which terminated fatally about seven months after delivery, were those which usually attend this disease. The disease was about three inches and a half from the anus; and it seemed to stretch for some distance upwards, occupying some considerable portion of the gut: it was attended with pain in the region of the sacrum, shooting to the nates, thighs, and hips. Whenever the bowels were relieved, there was great tenesmus. At the commencement, the motions were flattened and misshapen, and were tinged with sanguinolent pus mixed with

mucus. Towards the close of the disease there was obstinate constipation, while the abdomen became enormously distended with flatus and feculent matter; to relieve which, a bougie was passed, when the constipation became suddenly changed for an uncontrollable diarrhœa, which carried the patient off. While the bowels were constipated, the symptoms were similar to those produced by strangulated intestine: there were nausea, vomiting of dark offensive matter, singultus, coldness of the extremities, and delirium. These symptoms were associated with peritonitis; for which leeches in considerable numbers, and other usual means of relief, were prescribed. The patient, for days, obstinately refused to permit the introduction of a bougie; and it was not until one of some considerable size was passed (an operation of some difficulty) that the bowels were relieved of their contents. At the commencement of the disease, the motions were mis-shapen and irregular in form: as the disease advanced, they became flat and tape-like; and towards the close of life, when the diarrhœa was most distressing, the motions consisted chiefly of small pieces of feculent matter no larger than hemp-seeds, hard, and of a dark colour, mixed with a considerable quantity of sanguinolent mucus. The left iliac region was occupied by a hard irregular tumor, pressure upon which caused considerable pain, accompanied with tenesmus, and a desire to evacuate the contents of the bowels. On examination *per rectum*, the stricture was felt to be hard and irregular, surrounded with prominent fungating tubercles. Upon a vaginal examination, the hard and scirrhus condition of the rectum was readily discovered pushing the uterus forwards and to the right side.

*Treatment.*—If labour take place when the disease is in its early stage, it may cause little or no obstruction; yet if the disease be advanced, it may seriously interfere with the progress of parturition. But I am of opinion that the forceps will, in most cases, be sufficient to complete the delivery: at the same time, when we employ them, we must remember that, generally, the recto-vaginal septum is more or less implicated; so that it does not admit of that distention which, in its normal condition, it will allow. But if these be employed, and if, after gentle and judicious traction,

they are found unequal to accomplish the delivery, we have then to decide between the delivery of the child by the operation of cephalotomy, and the performance of the Cæsarean operation: and although I am not prepared to decide the question, as to which operation is to be performed, still we should bear in mind, that the performance of the former is attended with certain destruction of the offspring, while the life of the mother is saved but for a short period; whereas the Cæsarean section may effect the safe delivery of the child, provided it be not delayed too long, without hastening the mother's certain dissolution.

#### CASE 40.

My attendance was requested by one of the Pupils of Guy's Lying-in Charity, who had been for some hours with a woman, living in Magdalen Court, Tooley Street. He informed me that the woman was in labour with her fifth child; that the pains had come on seven hours previously; and that during the last three hours the head of the child had been pressing down upon the rectum, without making any advance; the cause of obstruction being the distended state of the gut, upon the contents of which the finger could make no impression. This woman was an illiterate Irish-woman; and although unable to inform us when her bowels had been relieved, she confessed that seven or eight days must have elapsed since that event took place. He had attempted to introduce the pipe of the enema syringe, but to no purpose, on account of the impacted state of the bowel; the fæces filling which were hard and dry. On making examination, I found the circumstances precisely as he had stated them; and passing the handle of a tea-spoon into the anus, I scooped out a considerable portion of hardened fæces. When I had made some way, I introduced the bowl of the spoon, and by its means a very large quantity of feculent matter was extracted. A large emollient purgative clyster was then thrown up; which acted in a short time, and the labour was naturally and happily completed.

CASE 41.

My attendance was requested, to see a 'patient living in Kent Street, by a gentleman who, in his note, stated there was "a tumor in the vagina, preventing his making an examination." On visiting the patient, I found her to be a strong plethoric young woman, 21 years of age, in labour with her first child. Her pains had commenced four hours previously, and the liquor amnii had passed away upwards of an hour. The tumor described, depended upon a loaded state of the rectum, which did not permit the easy introduction of the forefinger into the vagina for the purpose of making an examination: this latter canal was naturally very small. She stated, that for some years her bowels had been very costive, and that they were seldom relieved more than once in a week or ten days. The mechanical measures used in the previous case to evacuate the hardened faeces were resorted to; and these were followed by the injection of a large emollient enema, which acted favourably. The os uteri was found to be small; its edges very thin, and not disposed to dilate; and, as the uterine efforts were very powerful, about  $\frac{3}{4}$ vi. of blood were taken from the arm, and the bleeding followed by a full opiate. This acted like a charm; the os uteri became soft; and, on the return of pain, it rapidly gave way, and the labour terminated favourably. I might relate other cases; but the recital of these will suffice to shew the nature of this obstruction, with its requisite treatment.

I am sorry I am unable to supply the full particulars of the labour in the case of the female whose rectum was affected with malignant disease: the child, however, was premature and still-born, and the labour protracted.

*D. Tumors of the Bladder impeding Parturition.*

1. *Distention of the Bladder.*—An over-distended state of the bladder may obstruct labour, not only by interfering with the proper and complete action of the womb, but also it may alter the position of the child, and prevent it from occupying the cavity of the pelvis.

This obstructing cause of labour was recognised by the

older writers on midwifery, and is alluded to by almost every modern author. The retention of the urine is occasioned by the pressure of the presenting child upon the neck of the bladder or urethra. In Chapman's "*Improvement on Midwifery*," p. 221, a case is related of a woman who died in labour "by a violent retention of urine," after ten days' forcible but fruitless uterine efforts. When the body was examined, two tumors presented themselves to view: the one was the uterus containing the dead child; the other was the bladder enormously distended. From the commencement of labour, until her death, this woman had passed no water; for the child, pressing firmly on the neck of the bladder, had entirely prevented its emission.

It is not necessary that the full completion of the period of gestation should be accomplished for this stoppage to be occasioned; for in Roux's *Journal de Médecine, Chirurgie, et Pharmacie*, for July 1762, Vol. XVII. p. 180, a case is recorded by M. Costes, of a woman, who, at the seven months and a half of gestation, complained of pains in the lumbar region, which were followed by strangury and ischury. These were followed by labour-pains; which, although violent, were ineffectual, by reason of the distended state of the bladder, which was of such a size as to press upon the os tinæ. The neck of the bladder was so constricted, that repeated attempts to pass a catheter were unavailing. At length, it was determined to puncture the viscus; which being done, six pints of urine were drawn off. In half an hour from the performance of this operation the patient passed of her own accord, and through the urethra, more than two pints of urine—shewing the dilated condition of the ureters and pelvis of the kidneys; and in a short period of time an hydrocephalic fœtus was expelled. If the bladder be unrelieved, rupture may take place. In the Fourth Volume of the *Medical Observations and Inquiries*, p. 59, No. 4, a case is communicated by William Hunter, and reported by Hey, in which there was a rupture of the bladder in a pregnant woman, from suppression of urine. When the bladder is distended, it forms a swelling, situated at the lower part of the abdomen, before the uterus, from which it may readily be distinguished. This swelling is found to fluctuate: its form is also

diagnostic; for it is usually oblong; and the quantity which it will sometimes contain is enormous. Some years since there was a case of *retroversio-uteri* in Petersham Ward, in which eleven pints of urine were abstracted; and in the case of M. Costes, before alluded to, six pints of urine were drawn off after the bladder was punctured. One of the causes of this distention of the bladder I have already referred to; viz. pressure of the presenting child on the neck. In some cases, the urethra is elongated, so that, although a full-sized catheter be passed, it is not sufficiently long to reach the chamber in which the urine is confined.

Another cause of the distention may consist of the blocking-up of the urethra by a small calculus. In some cases on record, there appears to have been paralysis of the bladder, so that this viscus was unable to contract upon its contents. It is of the greatest importance not to overlook this cause of obstructed labour; for not only may the patient's powers be worn out, and she herself sink from exhaustion, but the bladder may rupture, as in Hey's case; or, if the case be allowed to continue for some time before relief is afforded, paralysis of this viscus may arise, calling for the daily introduction of the catheter; or the internal membrane may become inflamed, ulceration may follow, and the patient may ultimately sink.

When such cases present themselves to our notice, we must not be satisfied with the reports of nurses; for it is no unusual thing for them to say, "the water is constantly dribbling" or "flowing," even when the obstruction is so complete, that none, by any possibility, could have escaped. Medical men themselves occasionally fall into this error. I have, on more than one occasion, found the great distention of the bladder to be the obstructing cause of labour, when the surgeon in attendance has reported the passage of the urine to be copious and free. When the bladder is distended, pressure by the hand causes much suffering; and every return of labour-pains, accompanied as they are by contraction of the abdominal muscles, greatly augments the sufferings of the patient, from the pressure upon the distended viscus: in fact, in most cases, the woman loses all other pains, and complains of those seated at the bottom of the belly. When

we examine to ascertain the state of the os uteri, we oftentimes find it inclined backwards; and if we succeed in pushing up the uterus to ever so slight a degree, a gush of urine will take place, but only in those cases where the distention is caused by the pressure of the presenting child. Moderate attention on the part of the accoucheur will, in most cases, suffice to prevent the accumulation of the urine; for if the patient be unable to pass the water, the catheter should be from time to time introduced. But if we are called to a case in which there is distention, we should first pass a common-sized flat female catheter. If there be a calculus at the commencement of the urethra, opposing the introduction of the instrument, we should endeavour to extract it by means of a pair of forceps: and if we should not succeed with them, the calculus, if of small size and not likely to interfere with the subsequent stages of labour, may be passed backwards into the bladder, and its removal left for a subsequent opportunity: but if its size be so large, that it alone may lead to the obstruction of the labour, or may cause sloughing or laceration of the neck of the bladder, we should remove it by an incision; as by this operation we not only get rid of the accumulation, but also of the cause of the accumulation; and thus a double obstruction is removed. If no calculus exist, and the common-sized catheter is found to be too short to reach the accumulation, an elastic gum male catheter, or one flattened like the female catheter, may be employed. In passing this instrument, it is generally necessary to raise the presenting part of the child with one or two fingers of the left hand, when the instrument is readily passed on, and the bladder emptied. If our best endeavours fail to pass either instrument, it will be better to puncture the bladder above the pubes, than run the risk of a rupture taking place, which will inevitably prove fatal.

2. *Of Calculi in the Bladder obstructing Labour.*—By most obstetric writers, stone in the bladder has been alluded to as a cause of obstructed labour; and many cases of parturition thus impeded are recorded in books of Midwifery, and in the various Medical Journals. The accoucheur may not be aware of this foreign body until the period of labour; when, being seated either before the presenting portion of the child, or



between it and the arch of the pubes, it forms an impediment to the progress of the fœtus. The amount of the obstruction of course will depend on the size of the calculus. In the *Mercure de France*, Octobre 1784, p. 2260, a case is recorded by J. F. La Gauche, in which the circumference of the obstructing calculus was 8", and its thickness 1"—2". In the Thirty-first Volume of the *Edinburgh Medical and Surgical Journal*, 1829, there is the report of a case by Mr. Threlfall of Liverpool, in which the passage of the fœtus was obstructed by a stone in the bladder, which, when removed after death, was found to weigh 6 oz. 5 dr. and 3 gr.; its measurement being  $3\frac{1}{8}$  inches long,  $2\frac{1}{8}$  broad, and  $2\frac{1}{4}$  thick. Velpeau, in the Second Volume of his *Arts des Accouchemens*, p. 208, relates a case, in which a calculus, weighing  $9\frac{1}{2}$  oz., was removed from the bladder of a woman four months advanced in pregnancy, and who afterwards was delivered without any difficulty.

The diagnosis of labour obstructed by calculus in the bladder is not at all times an easy matter; although vaginal examination will cause us to suspect the presence of a calculus, especially if the tumor be hard and circumscribed; whether its size be small or large; if it cause pain both by the pressure of the finger and the forcing of the fœtal head on the recurrence of uterine efforts; if its surface be smooth or irregular; if it be seated above the anterior wall of the vagina, and below or behind the arch of the pubes; and if it be moveable during the absence of pains, but fixed while uterine efforts continue. This opinion will be strengthened, if the patient state she has previously suffered pain, from the symptoms of calculus, especially toward the close and following the act of micturition; but its presence must be confirmed by the passage of a catheter or sound, which, striking against the foreign body, will at once indicate its nature. I have stated, that the tumor formed by an obstructing calculus is usually moveable in the absence of pain; but it sometimes happens that the tumor becomes firmly wedged between the head of the child and the arch of the pubes, if the labour be allowed to go on without assistance. If the calculus, during the descent of the head, remain at the upper part of the vagina, it will not impede the delivery; and the head, descending into

the pelvis, will itself prevent any future obstruction from the foreign body: but if the calculus fall into the neck of the bladder, and be placed below the head, the labour will be rendered difficult; since the conjugate diameter of the pelvis is contracted by the presence of the foreign body. In forming our prognosis of labour complicated with stone, we must take into consideration not only the size but the shape of the calculus; for the stone may be so large, that, although it be seated in the bladder itself, and not interfere with the inlet of the pelvis, yet by its size it may, when pressed against the uterus by the contraction of the abdominal muscles, seriously interfere with the powers of expulsion; and, of course, if seated in the neck of the bladder, the amount of obstruction must be proportionate to the size of the stone: and even if labour be accomplished without the employment of instruments, the injury which the neck of the bladder may sustain will be followed either immediately or remotely by a vesico-vaginal fistula, which may embitter the remainder of the patient's days.

*Treatment.*— If the calculus be discovered during pregnancy, it should be removed before labour commences. The case already quoted from Velpeau proves that extraction may be practised with safety during gestation. But, if the case be permitted to proceed until the completion of the term of utero-gestation—if it be not detected until the patient be in labour—the case may be left to the natural efforts, if the calculus be small, or if it be seated in the cavity of the bladder above the head of the child. A case is related by Madame Lachapelle, in which the calculus was of so small a size that it did not impede the progress of labour. But if the stone be large, or if it be placed below the head of the child, we must have recourse to some method of removal; and the sooner such assistance is rendered, the better for the future comfort of the patient. The stone in some cases may be replaced, or rather may be pushed back into the cavity of the bladder above the brim of the pelvis. I have already alluded to this means of relief, when treating of accumulations of urine caused by the presence of a calculus at the commencement of the urethra. Smellie's directions are: "If it (the stone) still remain within the bladder, the only way of

relieving the patient is, by introducing a catheter and one or two fingers into the vagina, to push up the stone above and behind the head of the child:" and in recommending this method of treatment, Denman, Baudelocque, Roëderer, and Dubois, coincide. But this reposition can only be employed where the calculus is moveable; and during the early stage of labour, before the stone becomes wedged between the head of the child and the pubes. If the calculus do not admit of reposition, it must be extracted in one of three ways; either through the urethra, by the operation of lithotomy, or by what is termed "the high operation."

(1) Extraction of the calculus through the urethra is accomplished by dilating that canal, either gradually or at once, by means of forceps adapted for that purpose. The cases to which this method of relief appears suitable are those in which the calculus is seated at the commencement, or in the track, of the urethra itself. Inability to retain the urine not unfrequently follows the employment of the dilating forceps.

(2) In cases where neither reposition nor extraction of the calculus through the urethra can be practised, the operation of lithotomy should be resorted to. Of course, little or no difficulty will be experienced in those cases where the calculus is firmly fixed between the pelvis and the child. But, in order to give the patient the best chance of recovery, the operation should not be deferred too long, until either the patient is exhausted, or the parts pressed upon become inflamed and irremediably injured. Of course, the performance of this operation is followed by a continual flow of urine until the parts are healed; but a clean incision is much more likely to be followed by union than a large vesico-vaginal fistula. The result of sloughing is to be closed up by the process of granulation.

(3) The *high operation*, which has been recommended by some writers, appears to me to be more fitted for performance during gestation; as in the case related by Velpeau. The operation of version, advised by some authors, as Smellie. Velpeau, &c., appears to me to be entirely out of the question: for although we may introduce the hand without difficulty, and turn with great ease, yet there will be the same

obstruction to the passage of the child's head which there was when the head itself was presenting. If the stone be of small size, and the head be engaged in the pelvic cavity, its advance may be assisted by means of the forceps. The perforator was resorted to in the case related by Threlfall; but the nature of the case was not properly understood by him when he undertook the performance of the operation; for he mistook the obstruction for one connected with the ovary, and did not even pass a catheter to ascertain the state of the bladder. But rather than have recourse to this operation, I think it will be much better to remove the stone in one of the modes above recommended; for, in my opinion, we are not justified in taking the child's life, when it can be saved by the performance of so easy an operation as that of lithotomy, which at once removes the obstruction, and does not subject the patient to greater risk than the operation of cephalotomy, under the circumstances.

3. *Of Obstructions to Labour, caused by Scirrhus of the Bladder.*—I have seen but one case in which labour was obstructed by a scirrhous condition of the bladder and anterior wall of the vagina. The previous history of such cases, as well as the vaginal and vesical examination, will make us acquainted with their nature.

There is frequent inclination to void the urine; uneasy sensations at the neck of the bladder increasing after the urine has been passed, occasionally becoming very severe and lancinating. The urine is turbid, often containing ropy matter. Sometimes there is hæmaturia; and not unfrequently, coagula of an irregular form are expelled.

The introduction of a catheter is usually attended with great pain, and sometimes excites fearful hæmorrhage: the urine drawn off is generally fetid, and stains the instrument. A vaginal examination may detect the disease extending to the wall of the vagina, causing induration, &c.; while the constitutional symptoms are those which usually accompany the development of this diathesis.

A case of this kind is recorded by Puchelt, p. 204, from Loder's Journal, Vol. III. p. 842.

If such a case present itself to our notice, it must be treated upon precisely the same principles I have laid down

when treating of labour obstructed by scirrhus of the rectum.

4. *Descent of the Bladder obstructing Labour.*—The bladder in some cases descends before the child's head during labour, forming a serious obstruction to the process of delivery. It may descend during gestation; or it may take place for the first time during the early stages of labour, before the head is engaged in the pelvic cavity: and it probably is caused by the pressure excited by the descending head upon the fundus or middle portion of the viscus, at a time when it is partially distended with urine.

The symptoms which attend this displacement are, a bearing down in the region of the pelvis, accompanied by the sensation of pain, dulness, and soreness: there is a dragging from the umbilicus, or from a spot between it and the pubes: there is constant desire to pass the water; but the attempts to micturate are fruitless, although each return of uterine efforts is, in some cases, attended with the discharge of urine. When a vaginal examination is made, a tumor is found seated at the upper anterior and lateral part of the vagina, of a more or less oval form, smooth, fluctuating, and varying in size, according to the amount of displacement, and the quantity of water the bladder may contain. The tumor is seated below the head, if that present; and every successive return of uterine effort increases its tensity, especially in those cases where the urine does not escape. The size of these tumors varies: in some cases they are as large as the head of a new-born child. If a catheter be introduced into the urethra, it will at once detect the seat and nature of the tumor, and relieve the bladder of the accumulation, and so remove the obstruction. The descent of the bladder has been mistaken for an hydrocephalic head, as related by Dr. Merriman, p. 214. Dr. Hamilton, in his Lectures, was in the habit of relating a case, in which a surgeon mistook the prolapsed bladder for the membranes of the ovum, and punctured it, with the intention of letting off the liquor amnii. The same thing would have happened in Case 49, if I had made my visit a few minutes later. This descent of the bladder is much more likely to be confounded with ovarian tumor, encysted tumors of the vagina or pelvis, and herniæ protruding into the vagina; but the introduction of

the catheter, and the emptying of the tumor, will at once readily serve to mark the diagnosis. This cause of obstruction in some cases, if not in all, even in those where it is readily diagnosed and properly treated, renders the labour tedious and protracted. If proper assistance be not rendered in time, the descent may not only lead to the destruction of the child, as in Merriman's case, but also to the loss of the mother's life, as in the cases related by Sandifort; in one of which the woman died undelivered, and in the other the uterus was ruptured. The treatment of these cases consists in the continual introduction of the catheter into the bladder, and the evacuation of the urine until the head of the child occupies the pelvic cavity, and prevents both the accumulation and descent. After the evacuation of the urine, the bladder should be passed up, and retained in its situation by two fingers of the left hand until the head occupies the pelvic cavity. Many cases of labour obstructed by the descent of the head are scattered through the different medical periodicals; and this cause of obstruction is referred to by writers on Midwifery.

The perinæum is sometimes, although rarely, the seat of a vesical hernia. In the *Mercure de France*, July 1761, a case is recorded which occurred in the practice of Pipelet. In the *Memoirs of the French Academy of Sciences* for 1703, M. Méry has related the case of a woman who consulted him between the fifth and sixth month of pregnancy. She complained of great pain in voiding her urine; and, on examination, he found, between the vulva and the anus, a little to one side, a tumor of a size somewhat larger than a hen's egg. Méry noticed that some drops of urine escaped from the urethra, however lightly he touched the tumor. By the application of pressure, the tumor entirely disappeared, and the patient was then enabled to evacuate the whole contents of the bladder. In the Second Volume of the *Memoirs of the Royal Academy of Surgery*, a similar case is recorded by M. Curade of Avignon. In Mr. Aston Key's edition of the late Sir Astley P. Cooper's work on *Hernia*, there is the account of the dissection of the body of an aged female by the late Mr. Allan Burns, in which a displacement of the bladder is cited.

As I have no cases to record of labour obstructed by these displacements of the bladder, I refrain from entering, on the present occasion, into their diagnosis and treatment.

#### CASE 42.

I WAS requested to visit a patient who was stated to have been in labour for two days. I found her under the care of two surgeons, who had made unsuccessful attempts to deliver her with the forceps. She was 34 years of age: it was her first labour, and the head of the child was situated in the pelvic cavity: it had presented in the third position, and had not completed its turn into the second. Upon placing my hand upon the abdomen, I found what seemed to be a tumor formed by the distended bladder. Pressure gave her great pain; and the sensation of fluctuation could be distinctly felt: regular uterine efforts had ceased for some hours; and the only complaint the patient made was of a fixed pain in her abdomen. In answer to my inquiries, I was told this woman had been continually passing her urine. Confident that the bladder was over distended, I passed the common flat female catheter, although with difficulty, when no urine escaped; but feeling assured that there was an accumulation, I introduced an elastic male instrument, and drew off upwards of two pints of dark-coloured urine, to the great relief of the patient, and the astonishment of my friends. The labour was then speedily terminated with the forceps. Nothing happened to impede the patient's convalescence; but for six days the surgeon was compelled to introduce the catheter night and morning.

#### CASE 43.

I WAS desired, by note, to take my instruments as quickly as possible to the house of a woman living near the Blackfriars Road. I found her in labour with her first child: her pains had continued thirty-six hours; and although the os uteri seemed soft and dilatable, the head did not descend. She had not been free from pain for some hours, although there were regular paroxysms of increased sufferings. She made great complaint of the "agony" she endured in her "belly"; and upon placing my hand on the abdomen, I

readily detected the distention of the bladder. The attendant had failed in his attempts to pass the catheter, from his inability to find the meatus. This arose from the distended viscus drawing the urethra upwards; and consequently the meatus was retracted within the vagina, close behind the symphysis pubis. By means of the catheter, upwards of two pints of urine were drawn off, when all pain ceased for two hours; and during this interval the patient slept soundly: uterine efforts were recommenced, the head of the child was pressed down, and the labour terminated naturally in four hours.

#### CASE 44.

I WAS called to A—S—, who had been in labour for fifty hours with her second child: her pulse was 120; her respiration was hurried; and she was labouring under great depression of spirits. Cephalotomy had been performed in her first labour, which had lasted for three days. Upon instituting a vaginal examination, the head of the child was found in the cavity of the pelvis, with a large scalpy tumor pressing upon the perinæum. The liquor amnii had escaped some hours previously to the commencement of labour; the first stage of which had been rendered tedious, from the unyielding nature of the os uteri. I could obtain no precise account of the period at which the urine had been evacuated; the only answer to my questions being, "It is constantly dribbling." For two hours, regular uterine efforts had ceased; but there was great soreness and pain at the bottom of the abdomen, which was rendered agonizing when pressure was made by the hand. The abdomen was large, and the bladder was evidently distended: no urine followed the introduction of a silver female catheter; but when a male elastic catheter was substituted, nearly three pints of dark-coloured ammoniacal urine were drawn off. The delivery of the child was effected by means of the short forceps; but the placenta was retained for a considerable time by the non-contracted condition of the uterus.

For ten days the woman required the employment of the catheter.



## CASE 45.

A WOMAN, aged 42, the mother of nine children, presented herself amongst the out-patients at Guy's Hospital, complaining of an inability to hold her water, and great soreness arising from the continual dribbling of this fluid. She stated her last labour was protracted, lasting four days; and that the surgeon attempted to deliver her with instruments, but did not succeed. After a time, labour-pains again came on, and a still-born putrid child was expelled. After the birth of the child, a gush of water took place from the vagina, and since that period she has suffered from incontinence of urine. Upon examination, an aperture about the size of a shilling was found to exist in the upper part of the vagina, and within this opening an angular friable calculus was lodged. This calculus was analysed, and found to consist of ammoniaco-magnesian phosphate and phosphate of lime united.

## CASE 46.

A WOMAN, aged 40, presented herself at the hospital, stating she had been confined six weeks with her sixth child. Her history was as follows:—Her five first labours had been natural, and quick; with the exception of the first, which lasted thirty-six hours. In her last confinement, the medical man stated the child presented transversely; and after waiting for two or three hours, he introduced his arm into the womb, and turned the child, bringing down the feet: and in performing this, there did not appear to be much difficulty; but the head of the child was retained for upwards of one hour and a half, notwithstanding he made vigorous efforts to complete its delivery. At length he succeeded; and its expulsion was attended with great pain, and an immediate gush of water: since which time she has suffered from continual dribbling. On examination, a large vesico-vaginal fistula was discovered; and lodged in this opening, partly within the vagina, and partly within the bladder, an irregular-shaped calculus was detected. This was removed with some difficulty and pain.

CASE 47.

A WOMAN, aged 39, was under my care at Guy's Hospital, with malignant disease of the vagina and bladder, attended with the diagnostic symptoms of this disease: the inguinal glands, on both sides, were enlarged and indurated; and a chain of indurated glands could be felt in the course of the sacrum. At the period of her first consulting me, she was five months advanced in utero-gestation. Palliatives were advised; and their employment led to some mitigation of her sufferings. When pregnancy had nearly advanced to the eighth month, she sustained a severe fall, which brought on premature labour. A midwife was sent for; and as ten hours had elapsed without the completion of the labour, I was requested to see her. I found the progress of the labour was retarded by the unyielding condition of the diseased structures: her sufferings were very great; and the constant desire and attempts to pass her fæces and fætid urine were not among the least. With the assistance of the vectis, I completed the delivery; but the child was still-born, and had been apparently dead for two or three days. She lingered out a wretched existence for two months, suffering the most excruciating agony; when fatal peritonitis suddenly took place, most probably caused by the giving way of the serous investment of the bladder, and consequent effusion of urine into the abdominal cavity. She was an Irishwoman, and unfortunately no post-mortem examination could be obtained.

CASE 48.

IN 1838, one of the students of Guy's Hospital requested my opinion upon a case he was attending in Mint Street. The patient had borne several children; and for some years had suffered from a bearing down, which greatly increased during her present pregnancy, accompanied with constant desire to pass her urine, and difficulty in its evacuation. This gentleman informed me he could not make out the presentation, nor could he find the os uteri.

Upon making a vaginal examination, I found a smooth fluctuating tumor at the upper part of the vagina; and upon passing the forefinger of the left hand between this tumor and the rectum, the os uteri was found of the size of a shilling,

situated above the swelling, directed backwards, and its form elongated from side to side. A female catheter introduced into the meatus drew off about a pint of urine, which rendered the tumor flaccid: the nature of the obstruction was thus readily determined. He was directed to keep the bladder emptied, and to wait for the dilatation of the os uteri: this took several hours to accomplish. When the bladder was supported by two fingers of the left hand, the head passed into the pelvic cavity, and the labour terminated by the natural efforts.

#### CASE 49.

IN 1837, I received a note from a medical gentleman, requesting I would see a patient with him, "whose labour was protracted by reason of the excessive rigidity of the membranes," and which he had not been "able to rupture with his finger." Being from home when the note arrived, one hour elapsed before I was enabled to see the patient; and on entering the room, I found the attendant, with his penknife in his hand, about to puncture the cause of obstruction. A vaginal examination soon led me to suspect the nature of the case, for the os uteri could not be felt: indeed, the whole of the vagina seemed to be occupied by a smooth cyst, exceedingly tense, on account of the violence of the uterine efforts, which were almost constant. An unsuccessful attempt was made to introduce the silver catheter into the bladder; but after a little manœuvring, an elastic male instrument was introduced, when two pints of urine were evacuated. With the evacuation of the urine, the distention of the bag was removed: the os uteri could then be felt, about the size of a crown-piece, and dilatable. The labour was terminated naturally in about two hours.

#### CASE 50.

IN the spring of 1842, a medical friend requested my opinion respecting a case he was attending at Kennington. I found his patient was in labour with her second child: she was a short, pale, strumous-looking woman. Her first child was still-born, after a labour of several hours' duration: since that confinement, she had suffered from considerable pain in the back,

accompanied with a sensation of bearing down, with inability to retain her water for any length of time; but the efforts to emit this secretion were painful and forcing. My friend had been with her about three hours; during the whole of which time she had been suffering considerable pain in the back and abdomen. Upon examination, I found a coil of non-pulsating funis lying without the labia; and upon passing the finger into the vagina, I found a smooth tense fluctuating tumor, occupying its superior portion between this tumor and the rectum: the cord prolapsed; and the finger, being passed up in the absence of pain, found the os uteri thin, sharp, and in size rather larger than a shilling. The catheter introduced into the meatus was found to enter the tumor at the upper part of the vagina, and thus soon became flaccid when the urine was drawn off. Due attention was directed to keep the bladder empty; but there was great resistance to the dilatation of the os uteri, notwithstanding the uterine efforts were forcible and repeated. Some tartar emetic was given, until a complete state of nausea was produced; this was followed by a full opiate: all pain entirely ceased for a time, during which the patient obtained some refreshing sleep. In the course of one hour and a half she awoke: her pains were re-established: very little resistance was now offered on the part of the os uteri, which had become thick, soft, and dilatable. The head of the fœtus quickly passed into the cavity; but was retained at the outlet, owing to there being a slight approximation of the tuberosities of the ischia. Full opportunity was given to the natural efforts, to complete the delivery; but these not being successful, the child was extracted by means of the vectis.

#### CASE 51.

ELIZABETH BALLS, a strong-looking woman, 37 years of age, presented herself amongst the out-patients, complaining of great pain and bearing down, constant inclination to pass her water, with difficulty and pain in voiding it. She was six months advanced in utero-gestation; and her symptoms, she averred, had come on during her pregnancy. Upon making an examination, a considerable displacement of the bladder was detected: this was of so considerable a size, that the os

uteri was reached with difficulty. The urine was drawn off, and various means of relief, in the form of artificial supports, were resorted to; but to no purpose, as the tenderness and irritability of the parts were so great, that no pessary, whether common or medicated, could be borne for any time. I confided her to the care of Mr. Gunthorpe, to attend in her confinement. She suffered considerable pain during the whole day of January 21. Early in the morning of the 22d, Mr. G. requested my attendance, as he thought the presentation was preternatural, and the os uteri did not seem disposed to give way. Upon visiting her, I found her very irritable and anxious; completely worn out with her pains, which were almost constant, and confined to the back. The os uteri was rather larger than a shilling, and somewhat œdematous and exquisitely tender: the presentation was breech. I directed a full opiate to be administered, and constant attention to be paid to the bladder, which at the time of my making the examination was at the upper part of the vagina, empty. The administration of the opium was attended with beneficial effects: she became less irritable, and the os uteri began to dilate. At 7 P.M. Mr. Gunthorpe having a special appointment, I desired Mr. Woolnough should be sent for: this gentleman reported that the os uteri was slowly but gradually dilating. The bladder was kept empty by means of the catheter, and the urine was expelled naturally once or twice. At 10 A.M. a large female child was expelled, apparently dead, but which recovered after the diligent employment of the usual means of resuscitation. Her convalescence was protracted by an attack of bronchitis.

#### CASE 52.

SARAH FOREMAN, a weakly-looking woman, 39 years of age, who has suffered twice from puerperal mania, and the mother of twelve children in ten confinements, was taken in labour for the eleventh time, at 9 P.M. October 26, 1842. When visited by Mr. Woolnough, her pains were frequent, but not strong. On examination, the bladder was found to be prolapsed; and when distended with urine, it protruded beyond the external parts: she stated that she had suffered from this displacement for several years. Although the descent had

become greater during this pregnancy, the os uteri was directed backwards towards the promontory of the sacrum; and was dilated to the size of half-a-crown, thick, puckered, and so irritable, that when touched by the finger the aperture contracted. This condition of the os uteri had been remarked in one of her previous confinements, by my late colleague, Mr. Tweedie. At 3 A.M. her condition remained the same. Forty drops of the tincture of opium were administered: these were followed by a few hours' rest, and at 11 P.M. the head passed into the cavity; the bladder, which had been kept empty by means of the catheter, had returned; and at a quarter before 12 o'clock the child was born. Some slight difficulty occurred in the expulsion of the placenta, from the tight manner in which it was grasped in the centre by the contracted os uteri. Her convalescence was gradual, but satisfactory.

*E. Tumors of the Cellular Tissue of the Pelvis obstructing Labour.*

The cellular tissue which connects together the several organs contained in the cavity of the pelvis is liable to the formation of various tumors, which may obstruct the process of parturition by diminishing the size of the passages through which the child has to pass. In a practical point of view, these tumors should be considered as to their size, solidity, situation, &c.; but they have been divided into steatomatous, scirrhus, encysted, and hydatid tumors; and to these may be added those tumors which are occasioned by pelvic abscess.

1. Cases of steatomatous tumors obstructing parturition are recorded by Siebold, Osiander, Drew, Davis, Burns, Dewees, Ramsbotham, and others. They may arise from any part of the pelvic cavity: they have been found growing from the sacro-sciatic ligaments, from the cellular tissue between the vagina and urethra, and from that covering the linea innominata, as well as from that lining the sacrum. The size of these tumors varies: in some cases they occupy almost the whole of the pelvic cavity, as in the case related by Ramsbotham; and in the case which Dr. Drew has reported in the First Volume of the Edinburgh Medical and Surgical Journal, only one finger could be passed between the

tumor and the pubes, its weight, when removed, being 2 lb. 8 oz. In Dr. Denman's case (chap. 10. § 7.), the tumor is said to have filled up the greater part of the upper opening of the pelvis: but these tumors are not always so large; for in the case recorded by Osiander, the swelling was of the size of an egg.

2. Tumors of a scirrhus nature, as scirrhus glands, are sometimes found in the cavity of the pelvis, impeding parturition: they are situated along the hollow of the sacrum, and may be recognised by their locality, irregularity, and hardness. Examination of these swellings usually causes much pain; and they are found to be placed externally to the vaginal coats, and more or less firmly attached to the surrounding structures. This condition of the several glands is usually associated with cancer of the womb in an advanced stage; and although the os uteri may have permitted the head to pass through, as in the case of Mrs. C. related at p. 122 of No. XIV. of Guy's Hospital Reports, yet these glands may offer a considerable obstruction to the progress of the child. In the 34th Volume of the *Journal de Médecine*, Coutouly has published a case of Cæsarean section performed upon a woman 23 years of age, who, when young, received a fall, by which a foreign body was forced into the external genitals, producing serious hæmorrhage. When she was taken in labour, her attendant detected a round body occupying the cavity of the pelvis, which at first he took to be the head of the child; but subsequent examination convinced him that it was a tumor, attached to the right acetabulum. At this time the mouth of the womb was but little dilated, although the capacity of the vagina was considerably retrenched. On the following day the child was delivered by the operation of turning, with the assistance of the blunt hook: the patient recovered. Her medical attendant believing that the tumor was of a scirrhus nature, advised the woman to avoid the chance of pregnancy, but to no purpose; for after some months she was again taken in labour; and, upon examination, but a very small space was to be felt in the left side of the pelvis, so that the orifice of the uterus could scarcely be felt. After some time, the Cæsarean section was performed; but the case terminated fatally, on the

fifth day. When the body was examined, the vagina was found turned to the left side, towards the linea ilio-pectinea, in which situation the orifice of the uterus was detected. The tumor adhered firmly to the internal surface of the right side of the pelvis, but loosely to the interior surface of the pelvic bones, so that it was slightly moveable: it passed upwards as far as the pelvic inlet, and downwards to its outlet; it was hard and scirrhus. Between the tumor and the sacrum there was room for the admission of one finger: between the left side of the pubes and the tumor two fingers might be placed; while, on the right side, the tumor adhered most firmly to the pelvic bones. At the lower part of the tumor there was a carcinomatous ulcer.

3. *Encysted Tumors.*—Encysted tumors may also be formed in the cellular tissue contained in the pelvic cavity, and their existence may not be discovered until the accession of labour: they may generally be recognised by their fluctuation, by their being capable of being defined, by their freedom from pain, &c. They may readily be distinguished from hernia of the bladder or rectum, for which at first they are likely to be mistaken: the introduction of the catheter into the bladder in the one case, and the finger into the rectum in the other, will at once determine the point: but they are not so easily distinguished from dropsical or enlarged ovarium; neither is this of much importance, for the same principles which guide us in the management of the one case will direct us in the treatment of the other. Various cases of labour obstructed by these tumors are recorded. Madame Lachapelle, at p. 389 of her Third Volume, has related the case of a woman, 25 years of age, a patient of the “*Maternité*.” In her second confinement, a tumor was detected between the vagina and rectum, but causing no pain. The tumor was opened by means of an incision: a considerable quantity of fluid was evacuated, and, by the operation of version, a dead child was extracted, although not without some difficulty. On the following day the mother died: the tumor was found, after death, firmly attached to the coats both of the vagina and rectum: its cavity was unequally divided by numerous septa, some of which contained coagulated blood. Sometimes these encysted tumors contain sebaceous matter,



as in the case of Mrs. T., related by Dr. Merriman, in the Tenth Volume of the Medico-Chirurgical Society's Transactions. Dr. Denman refers to these tumors, and states that he has sometimes mistaken them for diseased ovaria. The case related by Dr. Ingleby, p. 130, appears to have been of this nature: it was seated behind the rectum. Dr. Ingleby says, the tumor which surrounded the rectum was large, with thickened walls, encysted, and contained a quantity of thick fluid. Similar cases are recorded by Puchelt, in his Monograph.

4. *Hydatids*.—A case of hydatid tumors obstructing parturition is recorded by Meyer. The patient was 31 years old. On the third day after the commencement of labour, Meyer performed the Cæsarean section; but the patient expired forty hours after the operation. When the abdomen was opened, four tumors came into view; the upper one of which, weighing four pounds, was seated in the hypogastric region, and was united with the lower tumor: it contained fifty hydatids. A third tumor, weighing ten pounds, occupied the place of the ovaries and Fallopian tubes; and a fourth was seated behind the uterus. But the tumor which impeded the delivery ran above the brim of the pelvis; and was so firmly connected with the mouth and neck of the womb, and with the vagina and rectum, that it could not be removed without injuring the parts: it was composed of several hydatids, inclosed in their capsules. The five tumors weighed 15 lb.: four of them were seated in the peritoneal cavity; and the fifth in the pelvis, between the rectum and vagina.

5. *Pelvic Abscess*.—Abscesses occasionally form in the pelvis, and are detected during labour: they are generally preceded by fixed pain and tenderness, which continue for a longer or shorter period, and are then followed by symptoms which indicate the formation of matter. When an abscess takes place, it may be mistaken for an enlarged and dropsical ovary: but this error in diagnosis is not attended with any evil results; for the treatment in both cases is similar, and the evacuation of the purulent fluid will at once decide the nature of the obstruction.

*Treatment*.—In undertaking the management of these tumors of the cellular tissue of the pelvis obstructing

parturition, we are not only to make out their situation and ascertain their size and boundaries; but their amount of solidity and firmness should be determined—a point of considerable importance, in directing our means of relief when they act as obstructing causes to the delivery. If the pelvis be of good size, the labour will most probably be terminated by the natural efforts; as in the case related by Dr. Denman, in his Second Volume. If the natural efforts are unequal to the delivery, I do not think we shall save the child's life, or in many instances succeed by the use of the forceps. Dr. Blundell says, "The application of the forceps in these cases is an excellent topic of obstetric dispute;" but unless the tumor is very small, we may scarcely hope to accomplish the delivery by the use of this instrument: in short, the attempt at its introduction in some of the cases would have failed, whilst in others, if applied, its use would most probably have been disastrous. In the majority of these cases, therefore, I am of opinion that the forceps are inapplicable. Puchelt states that the forceps were employed in a case related by Meyer; but the labour could not be completed with their assistance: in short, the mother died during delivery. Siebold is stated to have succeeded in delivering a woman by means of the forceps, where the obstructing body was a steatomatous tumor situated behind the pelvic bones; the tumor being at the same time secured by two or three fingers of the other hand:—the child was still-born: the mother recovered. While, in the *Giornelle di Chirurgia Pratica* del Dr. Gius Carella Trento (1828 May), there is an account of the child being delivered by means of the vectis, after the exhibition of the ergot of rye. The attempt at reposition will not succeed in most of these tumors; for they are generally firmly attached to the parts in which they are imbedded, and therefore will not admit of removal, from the pressure of the presenting child. Version, recommended by some authors, I regard as entirely out of the question; for by altering the position of the child we do not remove or lessen the opposing cause; we merely afford the accoucheur an opportunity of using more violence in attempting the delivery, and thereby sacrificing the life of the child, and endangering that of the mother. In the case of Mrs. S., related by Dr.

Merriman 'in the Tenth Volume of the Medico-Chirurgical Society's Transactions, where the operation of turning was performed, the lives of both mother and child were lost. In a case related by Osiander, where the tumor grew from the middle of the left linea innominata, the child was still-born, although the mother recovered. If the tumors be of a fluid nature, as encysted tumors or abscesses, they should be punctured, in order that their contents may be got rid of; but if the substance contained within the cyst be too thick to pass through a canula, an incision should be made, in order that the sac may be emptied; when, the cause of obstruction being removed, the delivery of the child may be left to nature, if the uterine efforts still continue; but if they have ceased, its extraction may be accomplished by means of the embryospastic instruments. If the tumor be so large as to occupy a considerable portion of the pelvis—if it be so dense and solid, that an exploratory needle passed into it fails to detect any fluid—if it be thought of a scirrhus or steatomatous nature—then we have to decide between the removal of the tumor, the performance of cephalotomy, and the Cæsarean operation. The success which attended the performance of the operation by Dr. Drew, who removed the tumor by the perinæum, has already been referred to. A similar case is recorded by Burns: both mothers were saved, although but one child was born alive. The tumors which formed the causes of obstruction in the cases of Siebold and Osiander, before noticed, might no doubt have been removed, without much difficulty to the operator, or danger to the mother. The cases that seem to be adapted to this means of relief are, doubtless, steatomatous growths; for they are more defined, less closely attached, and more moveable than other tumors. Scirrhus tumors, when they exist, or the scirrhus enlargement of the glands, are not fitted for the performance of this operation; while hydatid, encysted, and suppurative tumors may be diminished by the operation of puncture or incision. The operation of cephalotomy does not seem successful in saving the lives of the mothers in those cases in which it has been resorted to: in fact, if possible, I would rather remove the obstructing cause, than expose the woman to that violence which is necessary to

deliver the child, even though the head be lessened as completely as possible: and rather than resort to the employment of such violence in effecting the delivery, I would prefer the Cæsarean section; as I think, if that were performed early, the mother would have a better chance of ultimate recovery.

CASE 53.

J—— B——, aged 39, the mother of five children, became the subject of malignant disease of the os and cervix, and, after its development, contracted a second marriage. She shortly became pregnant; and gestation went on until between the seventh and eighth month, when symptoms of premature labour supervened. Considerable delay took place in the dilatation of the os uteri; and it was not until a portion of the morbid mass gave way, that the child's head would pass. The vaginal examination which had been instituted had detected a number of indurated glands situated over the sacrum: these were hard, irregular, and painful; and when the head descended, they obstructed its further progress. As the patient's powers were becoming exhausted, her pulse rising in frequency, and diminishing in volume, I terminated the labour by means of the forceps. The pressure to which these glands had been subjected caused them to become enlarged and to inflame; and the patient died exhausted, on the sixteenth day after her delivery. No post-mortem examination was allowed.

CASE 54.

Mrs. L——, a young woman, 22 years of age, about six weeks previous to the completion of her pregnancy, was standing on a chair; and treading too near its edge, it turned over, and she fell; one of the legs of the chair entering into the os externum. The pain and fright induced fainting: she lost some blood, but its quantity was small. She would not allow any examination to be made, although she complained of suffering great pain in the parts which coursed to the hips and back. On the next day, the pain was rather increased; and became aggravated when pressure was made upon the inferior part of the abdomen. This continued unrelieved for

three or four days, when leeches were employed, which had the effect of diminishing, but not removing, the pain and tenderness. Her symptoms remained stationary for three weeks, when she was attacked with rigors, followed by heat of the surface, and perspiration: there was pain and difficulty both in micturition and defæcation: the urine and fæces were carefully examined, but contained no admixture of pus. These shiverings occurred at irregular intervals of six or seven days, when symptoms of labour made their appearance, accompanied with more than usual suffering. Upon instituting an examination, to ascertain the state of the os uteri, a tumor was discovered between the uterus and bladder, descending half-way along the urethra: the tumor became tense during the uterine efforts, was painful on pressure, and in the absence of pain gave evident signs of fluctuation: the contraction of the uterus was accompanied with more suffering than usual; and the anterior limbus of the os uteri, and so much of the cervix as could be felt, was thickened, although not indurated. After two or three hours' suffering, little or no change took place in the condition of the mouth of the womb. I now determined to introduce a guarded lancet into the tumor, and was surprised to find that about a tea-cupful of pus was evacuated. This gave the patient much relief; the contractions of the uterus were not so painful; and a change was soon perceived in the size of the os uteri: the labour proceeded naturally, and was terminated in eight hours from the evacuation of the abscess. After her delivery, the uterus contracted firmly, but was placed obliquely in the pelvis, being inclined to the left side. The discharges from the vagina continued to be mixed with pus for upwards of three weeks.

I have subsequently attended this female in two confinements, and the labours in both instances have been natural.

#### *F. Pelvic Herniæ.*

Having treated of the displacements of the bladder which offer an obstruction to labour under section D., I have now merely to notice displacements of the intestines and omentum, which in some cases obstruct parturition. They may be divided in two kinds: 1. Vaginal herniæ; and 2. Perineal herniæ.

1. In the vaginal herniæ, the displaced parts either protrude between the bladder and the anterior part of the uterus and vagina (although its occurrence is not very frequent either in pregnancy or parturition), or below the posterior part of the canal and the rectum. When these displacements take place, they occasionally become an impediment to the progress of labour. The size of the protrusions differs. Smellie has related a case in which the finger only could be inserted between the hernial tumor and the symphysis pubis. This displacement does not often occur to primiparæ, although I have seen it in a first confinement: it more often takes place in females in whom there exists great laxity of the canal, from having given birth to many children, or from having undergone difficult labours. Chelius regards a posterior inclination of the pelvis as a predisposing cause. The exciting causes are, lifting heavy weights, violent strainings in evacuating the fæces or in child-birth, &c. The diagnosis of vaginal herniæ is highly important: the tumor is found to have formed suddenly, or it may gradually enlarge: it is of an ovoid or round shape, elastic, soft; and when pressure is made, it communicates a gurgling noise: if it contain intestine, it is larger in the standing than sitting posture; altogether disappearing when lying down; becoming painful to the touch when it has long been pressed upon by the child's head; and accompanied with nausea, vomiting, colicky, and other pains attending incarcerated herniæ. When the patient lies down, the tumor, as I have said, in most cases, returns spontaneously: in other instances it may remain; and its removal from the sac is accompanied with the gurgling noise which we know attends the reduction of other herniæ. If the patient cough, the hernial tumor will return, and may be again replaced. If the tumor contain merely omentum, it will give an unequal doughy feeling to the fingers: its shape is mostly cylindrical, its base wide, its formation more slow, and the patient feels a dragging from the scrobiculus cordis. The mouth of the womb is seated above and anterior to the tumor. It is sometimes difficult to distinguish vaginal hernia, especially when it is situated between the vagina and the rectum, from other tumors which form in that locality; but the history of the symptoms, the

recurrence of the swelling, the change which takes place in the alteration of posture, the symptoms which accompany the delivery, and a careful examination, are the grounds upon which we should frame our diagnosis. In forming our prognosis where labour is thus complicated, we must be guided by the size of the protrusion, and the nature of the parts therein contained. In all cases, the child's life must be more or less endangered, from the narrowing of the passage, and from the protraction of the labour. The mother's life may be secondarily endangered (although she be delivered) from the sequences of inflammation of the intestines.

1. *Treatment*.—In all cases of labour obstructed by vaginal herniæ, measures of relief should at once be resorted to: the herniæ should, if possible, be returned before the child's head occupies the pelvis. In order to return the intestine, the patient may be laid on her left side or back; or, if difficulty be experienced in effecting the reduction, she may be placed on her knees and elbows, as recommended by Levret. When the intestine has been returned, it should be maintained in its situation until the head of the child occupy the pelvis. If, however, the herniæ be strangulated, and the taxis and ordinary means of relief fail—and if, at the same time, the head of the child be pressing down upon the hernial tumor—we should at once either deliver by the forceps, or open the head of the child, and finish the delivery with as much despatch as possible, lest the continued injurious pressure cause inflammation and gangrene of the contents of the hernial sac. After delivery, the hernial tumor must be treated on the usual principles of surgery. The patient should wear either an oval pessary, or one made of caoutchouc, corresponding to the size of the vagina.

2. *Perinæal Herniæ*.—In perinæal herniæ, the intestine descends between the rectum and the vagina, down into one or either side of the perinæum. This form of internal displacement is very rare; although Smellie relates two cases, both being seated on the left side of the perinæum. This form of herniæ may be detected both by the rectum and the vagina. The seat of the perinæal herniæ is found to be in the posterior fold of the peritonæum, between the vagina and the

rectum. It is to be distinguished from vaginal herniæ by the tumor presenting in the perinæum; and may be known from other tumors with which it is likely to be confounded, by those symptoms and appearances which have been detailed when speaking of vaginal herniæ. In employing the taxis for its reduction, the pressure may be employed from within the rectum. Smellie succeeded in reducing the hernia, in his cases, through the vagina. In treating cases of perinæal herniæ complicated with labour, we should be guided by the same principles which are already laid down when treating of vaginal herniæ.

## CASE 55.

E—— P——, having been married five years, became pregnant. When seven months advanced in utero-gestation, she complained of great difficulty in passing her motions; stating, that when evacuation was attempted, a considerable time elapsed before they could pass: there were, disordered appetite, impaired digestion, flatulent distention of the abdomen; and she complained of the existence of some obstruction to sexual intercourse, which had lasted about a week. An examination was proposed, and agreed to. A tumor was found between the vagina and rectum, elastic; and pressure being made, it returned with a gurgling noise, at once indicating its nature. Upon her assuming the erect posture, it descended, and was again replaced without difficulty when she reclined. She was ordered to keep her bowels free by occasional doses of castor-oil, or the *confectio sennæ*; and an ovoid pessary was introduced. Her labour occurred at the full period, and terminated naturally.

## CASE 56.

IN July 1840, I was requested to see M. A. B——, in labour with her seventh child; the Note stating, that "there was a large vaginal tumor." On my visiting this patient, I was informed labour-pains had commenced two hours previously: her attendant, who was called to her in about half-an-hour from their commencement, found, on his first examination, the os uteri dilated to the size of half-a-crown: her pains regular and forcible. At once detecting the



obstruction, he sent for me. Upon instituting an examination, I found a tumor seated between the vagina and rectum, more or less rounded in form, becoming tense during uterine efforts; giving no sense of fluctuation, but enlarging whenever the patient coughed, which she did very frequently (having suffered from a bad cough for several days). An examination, *per rectum*, confirmed the opinion formed by the vaginal examination, that this was a vaginal hernia. The head was beginning to pass upon the tumor now; and as her pains were very frequent and forcible, she was bled from the arm, to the extent of  $\text{ʒ} \text{xiij.}$ : this was followed by the administration of two grains of opium. The head being pressed up by two fingers of the left hand, pressure was made upon the tumor by means of the right; when, after some time, a portion of the swelling retired with a gurgling noise: but still a considerable tumor remained; this felt soft and doughy; but, as the uterine efforts now returned with force, and as the child's head was moulding, the labour terminated without any unfavourable symptom. For some time after delivery, this patient suffered from pain and soreness in the region of the tumor. In her ninth labour, she had a transverse presentation; and in the interval had not been free from bearing-down and tenesmus.

#### CASE 57.

A WOMAN, 39 years of age, and pregnant with her sixth child, presented herself amongst the out-patients at the Hospital, requesting my advice respecting a tumor situated between the front and back passages. The statement she gave was, that after her last confinement, which took place three years previously, and in which the birth of the child was followed by considerable hæmorrhage, she had miscarried three times; and upon each occasion the loss of blood had been very great. About two months previous to her application at the Hospital, she had suffered from a sensation of fulness about the front and back passages, accompanied with bearing-down: there was frequent desire to evacuate the *fæces*, although but little followed when the attempt was made, and then not till after considerable straining: these symptoms increased; and, seven days ago, she first

perceived the swelling which caused her to apply at the Hospital. She complained much of flatulency, especially after taking her food, of occasional nausea, and frequent eructations. Upon making an examination, there was an evident enlargement on the left side of the perinæum: this was soft and elastic, when pressed. The tumor was felt, both when examination was made *per rectum* and *per vaginam*: it conveyed no sense of fluctuation, but distended on coughing, while pressure on the part caused no particular pain. As the patient was lying on her left side, upon making upward pressure by means of two fingers introduced into the rectum, the intestine retired with a gurgling noise. A pessary was passed, which the patient was desired to wear until labour supervened. The nature of the tumor was explained to her: she was desired to abstain from all violent exercise, and especially to avoid the lifting of heavy weights. She was ordered to attend to the daily evacuation of her bowels; and in case of any impediment occurring during her labour, she was directed to send to me, as her usual attendant was a midwife; but, as I heard no more of her, I concluded the perinæal hernia offered no obstruction to the progress of labour.

AN  
INQUIRY  
INTO  
CERTAIN OF THE CAUSES OF DEATH  
AFTER  
INJURIES AND SURGICAL OPERATIONS  
IN LONDON HOSPITALS.  
~~With a view to their Prevention.~~

BY NORMAN CHEVERS, M.D.

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It is singular that, while surgical research has always been directed to ascertain the best modes of performing operations and of treating wounds, so comparatively small an amount of labour has been devoted to the investigation of those dangerous casualties and insidious forms of internal disease which are continually rendering the most skilfully-performed operations entirely abortive, and causing wounds, in themselves of trivial extent, to become the causes of a rapid dissolution.

We are certainly already in possession of a considerable number of important, though isolated, facts respecting the mode of attack, and the effects of several of these forms of disease; but little has been adduced with regard to their precise causes, or to the best methods of avoiding or repelling their assaults. A brief inquiry (founded upon actual clinical observation in one of our largest metropolitan hospitals) into the most feasible means of encountering some of the diseases which so frequently prove fatal after injuries and surgical operations, may not be unacceptable.

Notwithstanding the fact, that the number of surgical operations performed in this country has, of late years, been greatly diminished by the introduction of improved methods of treating local diseases which were formerly considered to be remediable only by the use of the scalpel, it cannot but be

remarked, that there is a degree of danger attending their performance, which is generally more than proportioned to their apparent severity. It is true, that the effects of extensive wounds have been rendered less fatal, not only from the condition of surgical patients in large hospitals being greatly ameliorated, both before and after undergoing operations, by the adoption of various salutary precautions with regard to the comfort and cleanliness of their bedding, and the better construction and ventilation of their wards; but also by the introduction of better plans of operating and of dressing wounds; and, above all, by the enlarged views entertained by surgeons, in endeavouring to subdue the constitutional effects of injuries by regular systems of medical treatment:—yet, with all these and many other improvements, it cannot be doubted that the proportion of those who die after surgical operations and injuries still continues to be exceedingly large. Statistical writers have been at much pains to fix the exact ratio of those who sink after injuries and surgical operations, and to ascertain at what ages, and in what particular classes of operations, the larger proportions of fatal results are to be anticipated. In doing this, they have, in a great measure, opened the way for the investigation of the important points which form the main objects of the present inquiry: they have also effected much, in shewing that the practical tact and acumen of the surgeon are required less in the duties of the operating theatre than in preparing his patient's system for the shock which it is about to encounter, and in guarding it from the aggressions of insidious disease during several days or weeks subsequent to the operation. But, in one main point, these statistical observations fail in practical utility—in not admitting of being generally applied; for, as the results of operations are evidently greatly modified by locality and individual idiosyncrasy, they can scarcely ever be expected to correspond in any two situations or classes of persons. To illustrate the uncertainty which may attend the results of surgical operations, even when performed by one set of surgeons in different hospitals of the same town, I may quote a fact lately brought forward by M. Malgaigne, who states, that strikingly various degrees of success attend amputations in the several large Parisian hospitals; that in the most

fortunate hospital for pathological amputations\*, one death occurred in five; in the least fortunate, nine in ten; in the most fortunate for traumatic amputations, three deaths occurred in ten; in the least fortunate, all the patients who had been operated upon, died. It is evident that these results must depend upon some peculiar circumstances, either in the localities of the respective hospitals, or in the constitutions of the patients admitted to each; as it is stated that equal degrees of ill-success do not attend the same surgeons in their operations at different hospitals.

Without, then, entering into a discussion of the comparative degrees of fatality which attend different kinds of injuries and surgical operations, seeing that they must be always liable to endless variations according to the situation of the hospital and the constitutions of the patients, I shall proceed to inquire into the results of experience with regard to the most frequent immediate *Causes* of the deaths which occur in cases of this description. These fatal actions are extremely various: a large proportion of their number are of a very palpable nature, and have been observed by pathologists in all ages; others are of a far more obscure and insidious character, and have only been recognised latterly. It may be as well to enumerate the most frequent, although the succeeding remarks will be directed only to one class of these morbid actions. These causes appear to resolve themselves naturally into three distinct classes; viz. the Primary, Secondary, and Remote.

The first of these, or *Primary*, will include all fatal accidents which may occur during, or very shortly after, operations or injuries; such as, death from

Collapse,

Hæmorrhage,

The admission of air into the veins, or

The sudden occurrence of any internal lesion.

The *Secondary* include those fatal causes which are liable to come into action within a few hours or days after the receipt of injuries or the performance of an operation. They may be sub-divided into two sets:

\* Under the head of "Pathological Amputations," M. Malgaigne includes all those which are resorted to for the removal of ordinary disease: under the "Traumatic," those which are rendered necessary by wounds.—*Archives Generales*.

1st, Those which appear to depend upon some obscure lesion of the nervous system ; as, for example,

Tetanus,  
Delirium tremens,  
Irritative Fever\*.

2dly, Those which are attended with some manifest local change ; such as,

Arachnitis,  
Pleurisy,  
Pneumonia,  
Pericarditis,  
Endocarditis,  
Aortitis,  
Peritonitis,  
Purulent Arthritis,  
Suppuration in the Liver, or  
other Abdominal Viscera,  
Phlebitis and Arteritis,  
Laryngitis and Diphtheritis,  
Enteritis,  
Secondary Hæmorrhage,  
Sloughing,  
Erysipelaa.

Lastly, the *Remote* causes will comprise those which produce death after an interval of some weeks or months has elapsed, from the date of the operation or injury. The principal of these are,

Profuse Suppuration,  
Secondary Fever,  
Caries of Injured Bone, with Suppuration,  
Phthisis.

There are also several fatal causes which may come into action at almost any period between the time of the injury and the complete healing of the wound ; such as, hospital gangrene, and various forms of endemic and epidemic fever.

\* I have here submitted to the custom which places Irritative Fever among the obscure affections of the nervous system ; but it is certain that cases in which death is attributed to constitutional irritation occasionally occur where the whole train of symptoms characteristic of this state appear to depend upon a condition of general Arachnitis, which is found upon dissection.

The following remarks will be chiefly directed to certain of those causes of death which are included under the *Secondary* class; namely, marked diseases of various organs and surfaces (for the most part remote from the spot primarily injured), which are liable to prove fatal within a certain number of hours or days after operations and accidental wounds.

Morgagni notices it as a fact, observed by every one, but not sufficiently inculcated, that persons who have been admitted into hospitals with slight affections, and lay a long time, especially if they lay near sick, inhaling vitiated air, were subject to much more grievous diseases than those for which they were brought there: and, in illustration of this fact, he cites the case of a man who entered a public hospital at Bologna for the cure of a slight wound in the leg; but lying next to a patient suffering from an abscess of the thigh, which afterwards proved fatal, he became the subject of acute fever attended with cough (the sputa being tinged with blood, and afterwards assuming a greenish hue), difficulty of breathing, and pain on the right side of the chest, compelling him to rest upon that side. After his death, which occurred on the fourth day from the onset of the acute attack, these symptoms were found to have depended upon pneumonia, which had supervened, apparently, upon malignant disease of the right lung\*. A similar observation was also made by Fontanust.

More recently, several contributors to the "*Mémoires de l'Académie Royale de Chirurgie*" have noticed the deposition of pus in the lungs as a result of injuries. Dupuytren pointed out the frequent occurrence of inflammatory thoracic affections in consequence of burns; and Sir Charles Bell has emphatically remarked, that inflammation of the lungs is by far the most frequent cause of death in severe wounds, and especially in compound fractures. Mr. Erichsen, in some valuable observations upon this subject in the *Medical Gazette*, observes, that out of forty-one deaths occurring from various injuries in the surgical wards of University College Hospital (in which an account of the state of the lungs had been kept), these viscera were found to be either in the first or second stage

\* Morgagni De Sed. et Caus. Morb. Epis. xx. Art. 3 & 4.

† Fontan. Sepulchr. sect. iv. obs. 28.

of pneumonia, in 23 cases. Cline and Abernethy published cases in which the application of ligatures to the arteries after amputation produced a degree of inflammation in those vessels so intense as to spread upward to the aorta and heart, and in this way to destroy life. It is to the writings of Messrs. Travers, Arnott, and Carmichael, that surgeons are indebted for the greater number of facts with regard to phlebitis, as supervening upon surgical operations; and the researches of those gentlemen, and of subsequent investigators, shew, that, in these cases, the suppuration in the veins of the stump or injured part is, not unfrequently, accompanied by the occurrence of similar inflammatory states in other and distant regions of the body. In some of the fatal cases of this description, the endocardium of the right side of the heart has been found intensely inflamed; and large collections of pus have, in like instances, been discovered in the substance of the liver, lungs, and other organs. On the other hand, cases are upon record, in which similar purulent dépôts were found in the latter situations, the tissues of the veins appearing to be altogether free from morbid change. Dr. Addison has long been in the habit of alluding, in his Lectures, to the fact, that injuries and operations, especially when occurring about the generative organs or parts around the pelvis, are apt to be followed by peritonitis or pleurisy of the most-rapidly fatal description.

I have found it necessary to cite the above authorities, as it is to them that we are indebted for the principal details of a class of diseases to which (notwithstanding their great prevalence and extreme danger) scarcely any allusion has been made in the larger proportion of surgical works: and yet it can scarcely fail to suggest itself even to every student, who attends for a few years the wards of a London hospital, that patients under treatment for the effects of common operations, however skilfully performed, compound fractures, strictures of the urethra, slight punctured and lacerated wounds, and even ordinary contusions accompanied by little or no abrasion of the surface, are frequently, after a transient fit of shivering, followed by an apparently slight febrile re-action, attacked with inflammation of some vital organ, or of one or more of the serous membranes, which, without being accompanied by many of the distinctive signs of disease which usually characterize severe



inflammatory lesion of those parts in ordinary cases, or being attended with a degree of suffering to the patient at all proportioned to the extent of the surfaces involved, usually destroys life within sixty or eighty hours from the commencement of the acute attack. It will be remarked, that, in a large proportion of these cases, it is perfectly evident that the inflammation of the external wound has not been propagated, by continuity of structures, to the parts which suffer within: occasionally, indeed, the serous membrane nearest to the injured part is principally affected; still, the intervening structures are, in most of these instances, found perfectly free from all appearance of vascular disease; but, as often, the fatal lesions are discovered to have taken place in situations altogether at a distance from the part first injured, the viscera and serous cavities nearest to the wound remaining wholly intact.

Pneumonia, pleurisy, phlebitis, arteritis, and suppuration within the substance of the liver and lungs, are the only forms of disease to which I have hitherto alluded, as occurring in this class of cases; but it will be found that few of the solid viscera, and scarcely a single membrane in the body possessing the function of secreting an albuminous or mucous fluid, is, under these circumstances, free from a liability to become suddenly affected; the inflammatory affections, as I have already stated, not appearing to be propagated from one part to another by any visible continuous route, but usually arising consentaneously, and generally with equal intensity, in several parts very distant from each other. In this way I have known a patient sink with laryngitis, inflammatory œdema of both lungs, and acute purulent arthritis of the elbow-joint, in a few days after amputation of the leg below the knee. Misuse of the catheter or bougie, in cases of urethral stricture, is often followed by effusion into the ventricles of the brain and œdema of the lungs; and an almost endless variety of similar illustrations might be cited.

We have now to inquire with regard to the ultimate *Causes* upon which these forms of internal inflammation, when arising as sequelæ of operations and injuries, actually depend. The explanations of their occurrence which have hitherto been offered, although doubtless valid in some instances, appear to

me to be, upon the whole, unsatisfactory, and extremely inconclusive.

The occurrence of pneumonia, as a result of operations and accidents, has generally been attributed to the patient's confinement in a vitiated atmosphere, while suffering under a depressed and irritable state of the nervous system, and, more especially, to his having long remained in a recumbent position—a circumstance which is supposed to conduce greatly to the production of pneumonia, by causing an undue quantity of blood to gravitate towards the posterior parts of the lungs. Although the above causes must certainly tend to call pulmonic disease into action, where the previous state of the patient has predisposed him to such lesion, it is exceedingly questionable if they are the sole, or even the principal, causes of pneumonia, in one out of fifty of the traumatic cases which are brought under our notice. Very many instances undoubtedly occur in which these causes cannot possibly exert more than a very limited influence, but where the patients nevertheless sink rapidly under the most aggravated forms of thoracic disease. I have seen numerous cases where, although the patients had been taking daily exercise in the open air up to the time of undergoing operations, and subsequently lay in wards which were apparently very free from noxious exhalations, they nevertheless sunk, in a very few days, from pneumonia and other thoracic affections of the most aggravated kind. Nor does it by any means invariably occur that the inflammatory lesions present themselves in both lungs (a result which would, of course, be expected to ensue, if the mischief resulted from the gravitation and delay of blood within the chest, in consequence of the recumbent position): not unfrequently portions of one lung only will be found affected, probably either with hepatization, or with oozy infiltrations of ill-formed dingy pus, its fellow presenting a tolerably healthy appearance; or one pleural cavity will be discovered to contain an abundant effusion, the other remaining free from any traces of recent disease. On the other hand, it is not unfrequent for patients, originally of by no means robust constitutions, to remain for months, in the worst ventilated wards of London hospitals, constantly fixed in the recumbent position during the tedious period of recovery from compound fractures, lacerated wounds, and other

extensive injuries; weakened by profuse discharges, in a state of almost extreme nervous prostration, and exposed to a great variety of other debilitating influences; who still ultimately recover, without suffering from the slightest symptoms of thoracic disorder. It has been observed by Mr. Guthrie, that these inflammations are apt to occur after injuries where the lungs appear to have been rendered susceptible by previous disease; a cause which, when in existence, must of course always have great influence in predisposing to pneumonia: but I believe that affections of the lungs and pluræ are continually occurring, as sequelæ of injuries, in patients whose respiratory organs have hitherto appeared to be entirely healthy. Neither can we, in a large majority of cases, attribute the fact of these parts becoming diseased to their having sustained mechanical lesion at the time the individual received his wound: this may, of course, occasionally happen where the thorax has been compressed, or the concussion of the body has been great; but it certainly cannot be the case in that larger proportion of instances where the injury which precedes the pulmonic seizure is entirely localized in an extremity, or confined to a small portion of the surface of the body.

The states of phlebitis and arteritis, which are occasionally set up in the divided vessels of stumps shortly after amputation, have been supposed to arise from the mere irritation of the ligatures, or from some other mechanical cause: but it is almost needless to say, that the application of a common ligature to a healthy artery usually produces no greater degree of inflammatory action in its interior than is sufficient to close it at that immediate point; while, in persons of sound constitutions, veins have often been tied, cauterized, lacerated, and incised, with the greatest impunity. These forms of arteritis and phlebitis appear to be, upon the whole, of somewhat rare occurrence in English hospital practice; but when developed, they are usually seen in patients whose powers of reparation have long been weakened by disease or excess—a fact which leads to the belief that the vascular lesions probably depend upon some constitutional cause, which the operation has merely been the means of calling into activity.

The circumscribed collections of purulent matter which are occasionally found occupying portions of the substance of the

liver or lungs, in cases of this description, have, strangely enough, been supposed to arise from the absorption of pus by the veins of the wounded part, and the consequent deposition of the fluid within those vascular organs, which are imagined to have acted as filters, in separating this grosser matter from the blood. Although it cannot be doubted that purulent and other extraneous fluids are occasionally carried into the circulation by the veins, it is certain that, in many of these cases, there is no evidence whatever of such venous absorption having occurred; and that the purulent dépôts are evidently not mere infiltrations of the natural structures of these viscera but distinctly circumscribed or, at all events, localized abscesses, obviously attended with more or less destruction of the surrounding parts.

I cannot therefore admit that the usually-received opinions with regard to the causes of these forms of disease (as occurring after wounds and injuries) are by any means satisfactory. It has always appeared to me that there is probably one set of definite constitutional causes, which is ever ready to call these local mischiefs into fatal action, immediately upon the individual being subjected to any kind of unusual vicissitude or injury.

There is a very large class of individuals in this metropolis, and probably in most of our densely-populated towns, in whom excessive labour, constant exposure to extreme changes of temperature, intemperance, and not unfrequently the action of syphilis and the abuse of mercury, have produced such a generally-diseased condition of the system, that its powers of reparation after injury have become almost entirely destroyed. It will indeed often happen that these individuals are for a long time enabled to follow their ordinary avocations without appearing to suffer much inconvenience; but so soon as they become the subjects of any injury, as a contusion, a fracture, or even a slight puncture or laceration, any surgical operation, sudden loss of blood, or, in short, any depressing or exciting influence which tends to produce increased derangement of their organs of circulation and elimination, they almost inevitably become affected with acute inflammation of the most deadly kind, in some one or more of the great cavities of the body; scarcely one of the serous or mucous surfaces (as I

have before stated) being exempt from a chance of becoming affected. This state of the system, which is often spoken of under the vague and unmeaning term of "cachexia," is usually clearly traceable to a morbid condition of some of the principal organs of nutrition and elimination: the kidneys, liver, or spleen, have long been either in a state of confirmed disease, amounting to disorganization of portions of their structures, or have for a lengthened period remained in a condition of such intense functional derangement, as to be continually liable to fail in their actions upon the induction of any state of unusual constitutional excitement. Large numbers of patients of this description come under the surgeon's care: and I think I shall be able to shew that it is mainly owing to such a condition of the principal viscera as I have described, and not to the severity of the mechanical injury or to any fault in the mode of operating, that the greater number of deaths from internal inflammation, after accidents and surgical operations, generally occur\*.

It is almost impossible to have been long in the habit of paying close attention to the pathological examinations in one of our large metropolitan hospitals without observing that a very great proportion of those who die from the secondary effects of mechanical injuries have been the subjects of some marked, and often very acute, form of renal, hepatic, or splenic disease, or of the whole of these combined. For the purpose of confirming the observations which I have made at

\* It is of course undeniable, that, in certain situations, individuals who have previously enjoyed vigorous health die in great numbers in consequence of operations; but, in such instances, the fatal results are usually attributable to some unfavourable circumstances in the locality, or to the prevailing state of the atmosphere; and the fatal symptoms take on a nearly uniform character in every case. Thus, in some instances, tetanus has swept off large numbers of the wounded after general actions; in others, a form of low irritative fever has thinned the wards of military hospitals; and more than once, during the late war, it was found that, in certain ships, all those who were the subjects of wounds of any description became liable to hospital gangrene. But in the cases under consideration, the causes of death, although undoubtedly subject to be accelerated by bad air, confinement, &c., are evidently not mainly dependent upon such influences; as they may always be traced to a particular state of each individual's constitution which must have existed previously to his becoming the subject of accident or operation.

Guy's Hospital for several years past, I carefully examined the accounts of all the cases where death occurred from the *Secondary* effects of operations and mechanical injuries of every description which have been entered in the post-mortem Registers of the Museum during the last fifteen years\*, comprising the whole of the cases in which examination of the bodies of patients so dying could be procured during that period. The results are, I think, extremely interesting, and can scarcely fail to be regarded as of very great practical importance.

One hundred and fifty-three cases of the kind were obtained from that source. Many of the subjects of these reports had undergone severe operations, or suffered from extensive accidental injuries; others had been the subjects of wounds or contusions of an apparently very trivial kind: still, the internal inflammations which destroyed life in most of the latter cases were generally as severe as those which proved fatal in the former instances, and frequently more so. In these 153 cases, death took place from—

Inflammation of secreting surfaces or internal organs (excluding the kidneys, liver, and spleen) in . . . . .	134
In the remaining 19, the patients died from other causes; such as, tetanus, alonghing, hæmorrhage, suppuration, gangrene, erysipelas, diarrhœa, and the total deficiency of reparative action in the wound: and in one of these cases the precise cause of death could not be discovered . . . . .	19

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In but a small proportion of the above 134 cases (in which the injuries or operations were followed by the occurrence of fatal internal lesions) were the inflammatory affections found to be confined to a single organ or secreting surface; but it was generally noticed that several important parts, and these often at a considerable distance from each other and from the seat of the primary injury, had become equally involved†.

\* The period within which these cases occurred extended from the 19th of May 1827 to the 19th of May 1842.

† It may here be inquired, were not the inflammatory attacks, in some of these cases, the necessary results of the injuries which the patients had received? In a certain proportion, this may have been the case. In about thirteen of

The following is a list of the various recent inflammatory lesions which were found to have occurred in the above 134 cases† :—

Acute disease of the substance of the lungs, appearing in the form of inflammatory œdema, red or grey hepatization, abscess, or gangrene, was noticed in . . . . .	47 cases
Bronchitis alone . . . . .	2 „
Pleuritis . . . . .	35 „
Laryngitis and diphtheritis . . . . .	2 „
Meningitis . . . . .	27 „
Inflammation, softening or abscess of the brain . . . . .	9 „
Pericarditis . . . . .	14 „
Peritonitis . . . . .	52 „
Arteritis and aortitis . . . . .	4 „
Phlebitis . . . . .	3 „
Inflammation of various portions of the intestinal canal (excluding cases of hernia) . . . . .	9 „
Suppuration in the substance of the Psoæ muscles . . . . .	2 „
Acute purulent synovitis . . . . .	1 „
Inflammation of the tunica vaginalis . . . . .	1 „
Cystitis . . . . .	8 „

With regard to the state of the kidneys, liver, and spleen, I found that

of the above instances, the nature of the injuries was such, that it was evident the patients could have no fair chance of recovery : in the whole of the others it appeared that there was nothing to render the patients' restoration impossible, had not severe inflammation or some other unfavourable change intervened. It is not usually to be supposed, in cases of simple fracture of the skull, fracture of the ribs, and operations for hernia, that arachnitis, general pleurisy, and peritonitis, will necessarily follow : these are results which must commonly be referred to some error in the patient's constitution. Again, in given cases of laceration of the brain, and wound of an intestine, the injuries may in themselves be necessarily mortal ; but where, after the patients' deaths, pneumonia is found to have been set up in the first case, and pleurisy in the second, we have just grounds for inquiring whether some previous fault in the constitution has not caused these lesions to be superadded to those which would naturally result as the immediate local effects of the injuries.

\* It will be observed, that the figures in this Table merely denote the number of times particular inflammations were found to have occurred, and have no reference to the total number of cases. Thus phlebitis is stated to have appeared in three cases, and arteritis in four ; but there were, altogether, only six cases of vascular disease ; in three of which there was arteritis, in two phlebitis, and in one arteritis and phlebitis combined.

The kidneys were observed to be in a state of marked disease, either presenting remarkable congestion, softening, mottling, or the granular or cystiform alterations in . . .	72 cases
The appearances of the kidneys were not mentioned (usually from the autopsy having been only partial) in 44 „	
These organs were stated to be without any apparent disease in . . . . .	26 „
The condition of the kidneys was doubtful in . . . . .	11 „
	<hr/>
	153 „

Of the above cases, in which the kidneys were either not examined, found healthy, or considered in a doubtful state, there was marked disease of the liver or spleen, or of both these organs, in 21 cases—giving a total of 93 cases, in which one or more of these important organs was found in a state of lesion.\*

It was observed, that of the 134 cases in which the patients died of internal inflammations, there was also superadded marked disease of the kidneys, liver, or spleen, or of all these organs combined, in 90.†

In a rather large proportion of these cases, the disease of the liver, spleen and kidneys had evidently existed for a very considerable time previous to the patients receiving the wounds or injuries which became the apparent primary causes of death: but in very many (and this was especially observable in the renal cases) the changes were evidently of so recent a nature, as to render it probable that almost immediately after the operations or accidents, either visceral disease had been excited from a latent to an active condition, or that a state of acute congestion had suddenly been established in organs

\* From the character of the symptoms and the nature of the inflammatory lesions of which many of the patients died, I am convinced that renal disease would have been discovered in a considerable number of those cases in which the state of the kidneys was not observed, had those organs been examined after death.

† While engaged in taking notes of the above cases, from the Post-mortem Registers, I met with the following observation by Dr. Hodgkin, appended to the case of a man who sunk after lithotomy, about fourteen years ago, and in whom mottling of the kidneys was discovered after death:—"This condition of the kidneys was also noticed in another patient who died after the operation of lithotomy; and in others who have sunk after operations and injuries."



which had hitherto been suffering merely from chronic degeneration.

One of my principal objects in submitting these remarks to the Profession has been, to call the attention of surgeons to the very great frequency of disease of the three last-mentioned viscera, and of the kidneys more especially, in those who perish from the secondary effects of operations and injuries. I have long been perfectly convinced, not only that the greater proportion of deaths after wounds, in our metropolitan hospitals, result from the effects of disease in these organs called into activity by the accidents which the patients have undergone, but also, that any operation or wound, however trifling, will be extremely liable to prove fatal in persons whose kidneys are in any degree suffering from acute congestion, or from any condition at all approaching to that state:—and, although my data are less complete upon this point, I believe that the same observation will hold good with regard to those who are the subjects of active, splenic, or hepatic disease.

My attention was first drawn to the above fact by observing that the morbid characters presented by the serous membranes and other structures, together with the appearances of the effused fluids &c. in those who died of acute internal inflammatory attacks consequent upon operations or injuries, (especially where the primary wounds were at a distance from the parts afterwards involved,) almost invariably bore a precise resemblance to those which so characteristically distinguish the inflammatory affections of the same parts which are known to result from Bright's disease of the kidney:—and, where this has been the case, I have seldom failed to discover that there has existed, at the time of the patient's death, some form of disease of the kidneys sufficiently intense to have interfered greatly with the proper action of those glands, and thereby to have been capable of setting up a disposition to the occurrence of fatal mischief in the serous membranes or in other important structures.\*

It would be departing too much from the practical intention of these remarks to enter into an extended investigation with

\* Dr. Bright has remarked, that “where the secretion of the kidneys is greatly deranged, the serous membranes seem always ready to become the seat of inflammatory action.”—*Reports of Medical Cases*, Vol. I. p. 10.

regard to the precise manner in which a wound of some distant part of the body—by producing an increase of diseased action in kidneys already suffering from a great predisposition to vascular lesion—is eventually followed by inflammatory affections of various serous, mucous, and other structures. It may probably be sufficient to state, that the occurrence of such a train of actions can often be traced with the utmost precision; but there can be no doubt, that the state of general vascular excitement which succeeds most operations and accidents is extremely liable (by giving rise to additional congestion in kidneys already in a diseased or failing condition) so completely to interfere with their powers of secretion, as to induce the destructive effects which invariably result from unrelieved suppression of urine, and the consequent accumulation of urea in the blood;—that is to say, where the secretion is suddenly and completely checked, œdema of the lungs and cerebral effusion—where it is more slowly and partially suppressed, serous inflammations and effusions, and other extensive organic lesions.

There can be little doubt that structural diseases of the liver and spleen are also liable to become aggravated by the vascular excitement consequent upon wounds or other injuries to the surface of the body, and (in consequence of this farther derangement) to give rise to morbid effusions in other parts. The influence which organic disease of the liver has in producing unhealthy actions in various structures, the serous membranes more especially, has long been recognised. Whether structural disorder of the spleen can, by itself, effect similar injurious results, is a point less easy to decide: but it is certain, that some severe forms of local inflammation are almost invariably attended by remarkable disease of this organ: among these may be mentioned asthenic anthrax, and erysipelas.\*

\* It often, but by no means invariably, appears, that fatal results are promoted by the patient's catching cold during the period of restless excitement which follows severe injuries: this, doubtless, also assists in calling renal disease into activity, where the kidneys have been previously liable to disorder; and may then, in some measure, aid in determining the occurrence of pulmonary or other inflammations. But still, it is certain that many fatal cases of thoracic inflammations, consequent upon injuries, occur, in which there is no satisfactory evidence of the patient having suffered from cold.

I have already, in an earlier part of these remarks, given a general sketch of the class of persons who appear most liable to sink under extensive internal inflammatory affections in consequence of slight accidental injuries—and operations, in themselves, of a safe and ordinary kind. It is merely necessary to repeat, that, although in a great many instances in the prime of life, and to all appearance of robust and vigorous constitutions, their vital powers have generally been undermined by various kinds of intemperance and neglect, and their principal abdominal viscera have long been subject to some of the derangements upon which I have already dwelt. In this way, their powers of reparation after injury have become almost entirely destroyed, and they are thereby rendered wholly unfit to endure the trying effects which any operation or violence necessarily produces in the system.

With regard to the inflammatory affections which arise in various parts, as the sequelæ of comparatively trivial and superficial wounds, in these unhealthy subjects, it may be stated, that, in their mode of attack, in their symptoms, and in the peculiar characters of the morbid appearances which are discoverable after death, they appear, for the most part, to be perfectly identical with those fatal inflammations of various structures which so frequently attack patients who are known to be suffering from certain forms of *Morbus Brightii*; and I feel assured that a large proportion of these traumatic cases differ from the above class of idiopathic ones, solely in the difference of the immediately-exciting cause which brings them into play.

I must therefore repeat, that it is probably neither to the severity of the operation or injury, nor to the irritation which it creates in the nervous system; to the effects of bad ventilation, or of long confinement; nor, in fact, to the action of any other general cause, that we are principally to ascribe the predisposition of this class of patients to the fatal lesions under consideration; but rather to the influence of a diseased state of their abdominal organs, to which their previous habits of life have long been subjecting them. It is highly probable that, in most of the individuals who thus perish, even if they had never become the subjects of any wound or injury, some other vicissitude would, by bringing the renal or hepatic mischief

into active operation, have equally determined the occurrence of fatal cerebral, thoracic, or abdominal inflammations.\*

Considerable doubt has always appeared to exist among surgeons respecting the causes of phlebitis and arteritis, as occurring in the divided vessels after amputation, &c. I believe that the idiopathic forms of these diseases, in a very large majority of cases, occur in unhealthy persons who are at the same time labouring under some severe form of visceral disorder. A considerable number of cases are upon record, in which the subjects of Bright's disease were suddenly attacked with inflammation of the veins of a limb; and in different active stages of this kind of renal affection I have found the emulgent veins in a state of inflammation, as indicated by the presence of layers of adherent fibrinous coagula partially obstructing the interior of those vessels.\* During a long course of investigation into the causes of arteritis, I found that, in the greater number of instances of the most formidable type of this disease—the erysipelatous, the occurrence of acute mischief in the vessels was clearly traceable to the general inflammatory tendency produced in the serous membranes during the progress of renal disease. Of the six cases in which phlebitis or arteritis, or both of these

\* It is not intended to be argued that operations or injuries will be certainly destructive to life, in every individual suffering from renal or other visceral disease:—it is merely necessary to shew how slight a violence will often give rise to fatal mischief in cases of this description. I could cite other cases, in which small punctures, the passing of a catheter, the wound made in bleeding, blows upon fleshy parts of the body, the extraction of a tooth, were shortly followed by fatal results, in persons suffering from disease of the kidneys, &c. The last-mentioned case was a very remarkable one, and occurred in the hospital about two years since:—the patient, a girl eighteen years of age, had alonging of the gum and cheek, after the extraction of a molaris tooth, which continued until the facial artery ulcerated; and this accident happening in the night, the hæmorrhage proved fatal. Upon examination after death, the kidneys were found enlarged and indurated, their tunics being closely adherent to the cortical surface. The liver was highly congested.

\* In February 1841, Dr. Stokes laid before the Pathological Society of Dublin two specimens of the pale-yellow degeneration of the kidney, with this peculiarity, that the emulgent veins exhibited the phenomena which are usually considered to be produced by phlebitis with mechanical obstruction of the veins. In October of the same year I referred (*Reports*, Vol. VI. p. 313) to two similar cases; one of which I detailed in the *Post-mortem Register of Guy's Hospital*, July 7, 1838; of course, long before Dr. Stokes's observation was recorded.

affections combined, had occurred, out of the number given in the preceding Table, the kidneys were found in a state of marked organic lesion (under which there is every probability that they must have secreted albuminous urine) in five. In the sixth, the state of the abdominal viscera appears not to have been carefully looked to. These remarks, although they may not apply to all cases of venous and arterial inflammation consequent upon injuries and amputations, may in some measure tend to remove the obscurity respecting them.

It appears to be a fact almost entirely overlooked by surgeons, that the existence of renal disease has often a remarkable tendency to determine the occurrence of secondary hæmorrhage after operations. Indeed, during the progress of this malady, a kind of hæmorrhagic diathesis appears to become established in the system, which very trivial injuries are sufficient to call into activity. Did my space admit, many examples illustrative of this fact might be cited.\* I have now before me the notes of two cases of lithotomy, and one of incision of the urethra for the division of stricture, in each of which profuse and obstinate hæmorrhage followed the operation: little or no reparation occurred in the parts, and the patient died from exhaustion. In each of these cases the kidneys were found to be either in a mottled, highly-congested, or granular condition; and several other instances of secondary hæmorrhage consequent upon operations, most of them fatal, in which the kidneys were in similarly diseased states, have come under my notice. It is difficult to assign a certain reason for the occurrence of the above result in renal affections; but it is, in all probability, due to the morbid state of the blood which is inseparable from this state of the system, its highly-azotized

\* Dr. Lever, in an *Essay* published in the last Number of the Reports, has shewn that women who are the subjects of *Morbus Brightii* are very liable to suffer from hæmorrhage after delivery.

I believe that where salvation has been accidentally produced, in cases of renal disease, very profuse and obstinate hæmorrhage from the gums and cheeks has also ensued. The occurrence of extensive external and internal purpureal effusions and discharges of blood from the bowels is not unfrequent during the latter stages of renal disease. And where the serous membranes become acutely affected, in such cases, the products of inflammation are liable to be found of a deep sanguinolent hue, and mixed with coagula of blood.

condition, and the inability of the divided vessels to close by the usual processes of coagulation and adhesion.

Before quitting the pathological considerations which arise out of this subject, I shall venture to offer a few more examples of the manner in which I have observed renal disease interposing as a cause of fatal symptoms in surgical cases.

Mottled kidney is a very frequent attendant upon old strictures of the urethra. Persons thus affected are liable to be seized with shivering, vomiting, a quick pulse, and an anxious expression of countenance, but often without much localized pain; and to die with peritonitis or inflammations of other serous membranes, cystitis, and often with suppuration below the peritoneum at the base of the bladder, sometimes following the course of the ureter, and occupying the cellular tissue surrounding the kidney.

Such individuals are also apt to be suddenly attacked with inflammatory œdema of the lungs and cerebral effusions, ending in coma and death.

As, in cases of this description, the above symptoms not unfrequently occur as the results of the simple introduction of a bougie or sound, it becomes of importance to ascertain, if possible, the state of the urine in every case of stricture, previously to having recourse to the use of instruments for its treatment.

Adult patients suffering from stone in the bladder are often the subjects of an active form of Bright's disease. Where this is the case, the operation of lithotomy seldom fails to be rapidly followed by fatal inflammations of serous and other structures in various parts of the body; and, as I have already mentioned, there is in such cases considerable tendency to the occurrence of secondary hæmorrhage.\*

Syphilitic patients are liable to be unexpectedly attacked with œdema glottidis, purulent inflammation of the larynx and diphtheritis, or with rapidly-destructive forms of pleurisy, pneumonia, and peritonitis. It is generally found that the individuals who are thus destroyed have long been of intem-

\* Mr. Key, I am informed, observes, in his Lectures, that he has scarcely ever seen a fatal case of lithotomy in which there was not discovered organic disease of some of the abdominal viscera, and more especially of the kidneys.

perate habits, have suffered from the abuse of mercury, and become the subjects of mottling or granular disease of the kidneys.

Persons suffering from asthenic anthrax are apt to become affected with acute pleurisy and other internal inflammations; the effused fluids occasionally taking on a sanguinolent aspect. I have found that patients who have died in this manner have been the subjects of marked renal affections, similar to those noticed above.

Other patients, while under treatment for various kinds of surgical diseases, not unfrequently die from the effects of acute inflammatory attacks, ascribable to degeneration of the kidneys and of the other solid abdominal viscera.

From facts already dwelt upon, with regard to the effects of wounds upon patients suffering from the different stages of Bright's disease, it becomes a point of extreme importance to be borne in mind, in a medico-legal point of view, that an injury, in itself of a most trivial kind, is liable to be followed by fatal results, should the subject of it be suffering at the time from either acute congestion, mottling, or granular degeneration of the kidneys.

#### *Preventive Means.*

I have for several years past sought to prove the necessity of testing the urine of every patient admitted to the surgical wards of our metropolitan hospitals.

The immoderate use of ardent spirits is so general among the poorer classes of the metropolis, and the almost inevitable consequences of that practice, organic visceral lesions, so frequent, that in scarcely any individual, whether the subject of accidental injury or spontaneous disease, can it be safely presumed, until the state of the secretions has been carefully examined, that the principal abdominal viscera, and the kidneys more especially, are in a sufficiently sound condition to enable the patient to be subjected, without imminent hazard, to a surgical operation, or even to any very active course of medicinal treatment. Where renal disease exists, the commonest fracture may prove fatal, the slightest puncture become the cause of deadly inflammation, the simplest and most ably-performed operation be rendered abortive; and yet it is highly

probable that in such cases a timely discovery of the real condition of the viscera, the use of such remedial measures as are generally found available in allaying renal irritation (by relieving the kidneys as much as possible from the duty of active secretion), and the temporary postponement of operations, where the nature of the cases would admit of delay until the unhealthy action in the diseased organs had in great measure subsided, might, in a large proportion of such cases, be the means of avoiding the most disastrous results. It is to be feared that the more confirmed forms of renal disease never undergo a complete and permanent cure; but it cannot be doubted, that during the earlier stages of the affection, while the glands are still merely in a state of great vascular turgescence (a period, by the bye, at which I believe inflammations of the serous membranes to be especially liable to occur), the disease is certainly amenable to remedies; and although, where there is reason to suppose that the kidneys have undergone a permanent structural change, every injury is attended with considerable risk to the patient, it is well proved that, even then, the disease of these organs may be rendered passive and kept down, the urine being, for a time at least, restored to its natural character. Under such circumstances, operations may not be productive of such certain danger. I have seen cases of patients suffering from stone at Guy's Hospital, where, some weeks previous to the operation, the urine had been albuminous, but this condition having yielded to remedies, lithotomy was performed, and the patients recovered without any marked bad symptoms. There can scarcely be a doubt that in these cases an operation undertaken while the kidneys were in an irritable state would have been unavoidably fatal.

I think that it is impossible to urge too strongly the necessity of invariably taking the precaution of examining the state of the liver and spleen, and of testing the urine for the presence of albumen in each patient, before deciding upon the performance of any surgical operation; and of postponing such operation, if possible, while either of those organs appears to be enlarged, or the slightest trace of serum is found in the urine. Occasionally, renal disease may remain undiscovered by this test; for it is unquestionable, that extensive granular degene-



ration of the kidney may exist in a passive form without indicating its presence by albuminous urine; but in such cases the surgeon must be free from blame, after having taken the usual precautions for detecting the disease. Even where the urine has been found healthy immediately previous to the operation, I believe that there is still great necessity for testing its condition, at intervals of a few hours, during a considerable time after the patient has been removed from the operating-table to his ward; for the extremely recent appearance of the morbid changes observable in the kidneys of many of those who have sunk from internal inflammations after injuries has (as I have already stated) led me to believe that these organs often remain with merely a tendency to derangement until the disturbance consequent upon the operation causes them suddenly to take on a state of active disease. In instances where the kidneys and other viscera are known to be in an unhealthy state, but where, in consequence of accidents, herniæ, &c. an operation cannot be postponed, it will still be left with the surgeon to use every means in his power, both before and after the operation, to render the patient's state as little dangerous as possible, by endeavouring to relieve the kidneys and other abdominal organs from congestion and over-action. And even in patients in whom there is no evidence of the existence of visceral disease, the surgeon cannot be too careful in his precautions against its establishment, both before and in consequence of operations, wherever the aspect of the individuals or the history of their general habits renders it probable that they are in any degree liable to the occurrence of such disorder.

Little can be said with regard to the management of the inflammatory affections of serous and other structures which occur in these cases: the fact of their generally proving fatal, despite of all remedial measures, is the strongest argument that can be adduced in advocating the adoption of measures for the prevention of their attacks.

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Before quitting this subject, it is necessary to add a few remarks with reference to the deductions which I have drawn from the facts contained in the above pages.

It must be borne in mind, that those conclusions are the results of observations made in one particular locality, and among a class of patients whose previous modes of life may be supposed to have been, upon the whole, of a nearly uniform character. The remarks will, I believe, apply generally to patients treated in London hospitals; but it must not be inferred that they are therefore expected to hold good with regard to the causes which produce death after operations &c. in all other situations. In no two countries, and perhaps in no two cities of the same country, will precisely equal degrees of mortality after injuries and surgical operations obtain: the respective number of deaths and the nature of the several fatal causes will be liable to endless variations, dependent chiefly upon the previous modes of life of the patients, and the situation and arrangements of the hospitals which they occupy. Many of the causes which produce fatal results after operations or accidents, in Parisian hospitals, may scarcely have any effect in determining the safety of patients admitted to our metropolitan charities. The peculiar habits which render the artisans of most English manufacturing-towns liable to suffer from inflammatory affections in consequence of wounds (being far less prevalent in many parts of the Continent) must there have a proportionably slighter influence in producing similar effects. The causes of the fatality of operations performed upon soldiers, in military field-practice, are certainly, for the most part, distinct from those which prevail among the inmates of the greater number of civil hospitals: and, indeed, differences in the situations of two infirmaries, in opposite quarters of the same town, may determine a far greater proportion of deaths to one than to the other. In one, the vicinity of a confined district, rife with unhealthy exhalations, may be exerting a destructive influence: in the other, a more open and elevated situation may render its occupants entirely free from the effects of such noxious agency. The same remark will, in a less degree, hold good even with regard to different wards in the same building.

It must therefore be borne in mind, that the above observations are intended to apply chiefly to the causes which, during a long series of years, have led to fatal results after operations and injuries in Londoners of the poorer classes, the inmates of a metropolitan hospital, in which the air and ventilation are tolerably good, where secondary fever and the worst forms of erysipelas are not prevalent in the surgical wards, and where, in fact, the chances of death after operations &c. appear to depend almost entirely upon the previous state of each patient's constitution.

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OBSERVATIONS ON THE STRUCTURE,  
FUNCTIONS, AND DISEASES,  
OF THE  
CORONARY ARTERIES OF THE HEART.

BY NORMAN CHEVERS, M.D.

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STRUCTURE.

ALTHOUGH the peculiarity of the functions performed by the coronary arteries of the heart would appear to call for special inquiry as to the manner in which nature has adapted them, by position and arrangement of tissues, to fulfil these offices, it is, as far as I can learn from the best anatomical authorities, generally presumed that these two vessels have no especial characters to distinguish them from other arteries of similar dimensions. The principal object of the following remarks is, to shew that, in the structure of their tunics, the coronaries really differ, in a very remarkable degree, from all other vessels of their size; and to attempt to assign the causes upon which the peculiarities of their construction depend.

I have already (in the 5th Volume of the Guy's Hospital Reports) had occasion to describe the complicated arrangement of a strong laminated fibrous tissue which exists between the internal and middle coats of the aorta and some of its branches:—it is from the remarkable development of this structure, at the expense as it would seem of another tunic of the vessel, that the coronary arteries derive their chief peculiarity. The membrane lining these tubes being, of course, a prolongation of the internal surface of the aorta, presents exactly the same characters with it: its surface is found to be minutely granular, when the secretion which maintains its polish is removed with a sponge or by drying; and it is so closely attached to the tissue beneath it, that no manipulation can separate it in a layer, except with a corresponding portion of the fibrous tunic. Without entering into a long recapitulation, it may here be stated, that the sub-serous tissue of the aorta (which is not a

prolongation of that of the endocardium) commences at the root of the aorta, behind the lining of the sinuses of Morgagni, and, strengthening these hollows by a beautifully regular arrangement of minute fibres, is thence prolonged upwards, to fulfil a similar office throughout the remaining part of the great artery. In the hollows which give off the right and left coronary arteries, portions of the fibres of this tissue may be readily traced, passing into the orifices of these vessels, chiefly at the upper and under parts of their circles. At their entrance, these fibres form rather thin laminae; but immediately upon reaching the interiors of the arteries, they undergo a great increase of development, spreading out into several layers (three of which, at least, may be discerned upon very cursory examination), and, in short, forming the main tunics of the vessels. Upon laying open a healthy artery of the extremities, nearly corresponding in size to one of the coronaries, and introducing the point of a sharp instrument beneath its lining, some of the transverse fibres of the middle coat will be immediately raised; the greatest care being here required to discover any structure intervening between these and the serous membrane. But this is not the case in the vessels under notice; for here, with a fine needle and a pair of dissecting forceps, layer after layer of longitudinal fibres, easily separable from each other, may be raised, and traced far downwards, through nearly the whole extent of the arteries, and into every minute orifice passing from their main trunks. In extending along the tubes, these fibres do not take a perfectly longitudinal course; but those of the different layers, spreading out as they descend, cross the fibres of the laminae above and below them at very acute angles; an arrangement which is also found in the aorta, and which must, of course, add greatly to the strength of these arteries. It will become apparent to every one who dissects the vessels, that, in proportion to the size of these tubes, this tissue is very far more strongly developed in the coronaries than even in those parts of the aorta best supplied with longitudinal fibres.

Upon detaching the whole of this elastic tissue, the middle coat next comes into view. This will be found exceedingly thin, being composed of, apparently, only a single layer of circular fibres, slightly interlaced: it is not of more than one-

third of the thickness of the middle coat of the radial artery at the wrist; and, in fact, its development can only be considered as rudimentary.

External to this, and easily separable from it, is found the fourth tunic, strongly reticulated, and plentifully supplied with vessels, and surrounded, throughout the whole of its course, by the intricate network of nerves, from the cardiac plexuses, which may almost be regarded as intended to form another investure for the defence of each vessel under distention. From these facts, it will appear that the coronary arteries have a close resemblance, in the arrangement of their tissues, to the large superficial veins of the extremities\*: they, indeed,

\* During a careful investigation of the minute structure of most of the principal veins of the body, upon which I have been for some time engaged, I have found that a remarkable distinction exists between the arrangement of the tissues which form the deep veins of the trunk and viscera, and that which obtains in the superficial venous branches of the extremities: for while the interior of the former is almost entirely composed of long parallel *circular* fibres, generally without any intermixture of longitudinal fasciculi (except at one or two points where a few filaments take a vertical direction), the proper tunics of the latter are formed, within, of a strong layer of fibres, the whole of which take a *longitudinal* course in the intervals between each set of valves; and these fibres are immediately backed by a distinct outer layer of *circular* fasciculi, which cross them at right angles, but without any interlacement: this outer layer forms distinctly a part of the proper tunic of the veins, and is perfectly separate from their cellular sheath. The proper tunic, then, of the Inferior Cava, Vena Portæ, Coronary veins, &c., is therefore formed almost entirely of circular fibres, disposed transversely to the axes of the vessels; and, exteriorly, their cellular coats appear to be supplied with a few bundles of fasciculi, which traverse their cylinders lengthways. But the superficial veins, as, for example, the Median, Cephalic, and Basilic of the arm, present an entirely contrary arrangement; their longitudinal fibres being placed towards the current of the blood, and the circular external to these. From this description, it will be seen in how striking a manner the coronary arteries resemble the veins of this latter class, in the arrangement of their sub-serous and middle coats.

I believe that the above remarkable difference in the construction of the superficial and deep veins has hitherto been entirely overlooked.

It will be perceived how admirably both sets of vessels are adapted, by this arrangement of their tunics, at once to fulfil their peculiar functions, and to resist the injurious influences to which their several positions frequently expose them: the structure of the superficial veins fitting them to undergo forcible and rapid distention and extension under sudden muscular efforts and violent contortions of the limbs: that of the deeper vessels of the trunk enabling them to admit of far more considerable and protracted distention during the frequent retarda-

appear to possess an intermediate gradation of structure between the vessels of the arterial and venous systems.

#### FUNCTIONS.

It is clear that the smallness of the diameters of the coronary arteries in proportion to the size of the vessel from which they arise, together with the shortness of their course, and the vicissitudes to which they must be continually exposed in consequence of their close vicinity to the heart, must render it necessary that they should be proportionably strengthened. We find that those portions of the aorta which are the most liable to suffer dilatation under the direct impulse of the blood, as the sinuses of Morgagni and Valsalva and the transverse and descending arch, are best supplied with layers of oblique or longitudinal fibres; while the small and otherwise weak arteries given off from the thoracic trunk (the bronchials and intercostals) have also laminae of this structure prolonged upon their interiors. Again, it will almost invariably be noticed, that whenever the fibres of the middle tunic of the aorta gradually become thinned in consequence of diseased action, those of the elastic sub-serous tissue acquire a remarkable degree of increased strength and tenacity. In the coronaries we find a natural deficiency of the circular fibres more than fully compensated by an unusual development of the latter structure.

Two properties appear to be especially required in the coronary arteries, from the peculiarity of their position and mode of distribution: first, that of possessing a remarkable degree of power to sustain the impetus of the downward current of the blood, together with enough resiliency to recover from the elongation which, at every injection, that current must produce in their canals: and, secondly, that of being furnished with sufficient lateral extensibility to enable them to bear those degrees of distention (which are probably far greater than are usually suffered by any other portions of the arterial system) to

retardations to which the pulmonary circulation is liable: while the vessels of each class are so constructed as to have the power of regaining their natural dimensions when the causes of their over-distention have ceased to operate.

I have placed dissections of the structures of the veins and of the coronary arteries in the Anatomical Museum of Guy's Hospital.

which they must be very frequently exposed, both where an increased quantity of blood is thrown into them under inordinate excitement of the heart's action, and where the passage of their contents into the coronary veins is delayed during suspended respiration; or under obstructed conditions of the pulmonary circulation of longer duration\*; or, on the other hand, where, from a diseased state of the arterial capillaries generally, or from thoracic aneurism, &c. &c.,† the flow of blood through the aorta is materially impeded. The first of these requirements is partially fulfilled by the position of the arteries, the horizontal direction of the commencement of the right and of some branches of the left, and the tortuous course of both: still, these arrangements would scarcely be sufficient to enable arteries of ordinary construction to bear the pressure of the great column of blood which fills the aorta at every ventricular systole; a pressure which, upon a common hydraulic principle, must evidently have a tendency to produce permanent elongation of these tubes, and finally to cause their rupture by separating the transverse fibres of their middle tunics. But the vessels appear to be fortified against these accidents, by the apparatus of longitudinal fibres described above; as it is clear that this must fulfil the duty of mainly sustaining the pressure of the fluid, and, by its resiliency, of enabling the canals to regain their proper length after every vertical extension.—The second requirement (that of being capable of admitting a considerable degree of extension laterally) appears to be provided for by the tenuity and yielding character of the middle coat, which, although too weak to resist alone the dilating

\* In cases where there has long been obstruction to the flow of blood through the right side of the heart, the great over-distention which has thus been produced in the coronaries is often indicated by considerable portions of their outlines being traced upon the pericardium covering them in opaque white lines. But in these cases, the greater amount of distention appears to be borne by the coronary veins, which are capable of becoming remarkably dilated. I have met with more than one example of the kind, in which the common opening of these vessels into the auricle would easily admit the end of the fore-finger.

† In the larger proportion of cases of thoracic aneurism, general dilatation of the aorta and other similar conditions depending upon obstruction of the general arterial circulation, the coronaries, if not previously hardened by inflammatory deposits, are found considerably widened.



impulse of the blood, has still sufficient elasticity to exert some pressure upon that fluid, and to restore the tubes to their proper calibre after the distention has ceased; and in doing this, it must also be aided by the longitudinal fibres.

Another peculiarity in the functions of the coronary arteries may here be glanced at, as it appears to offer a rationale for the resemblance in structure which they bear to certain veins. These vessels are perhaps, more immediately than any other arteries in the body, under the influence of muscular contraction from without: like many of the venous trunks, they are constantly liable to have their circulation suddenly checked or hastened by the action of the susceptible muscular organ upon which they rest: every sudden contraction of the heart occurring accidentally, while these arteries are at their fullest, must have the effect of forcing back the blood which is entering their capillaries, and thus of unduly distending the main canals. To sustain this irregular action, a combination of the strength of an artery with some of the extensibility of a vein is obviously called for; and of these properties the coronaries are certainly possessed.

#### DISEASES.

The coronary arteries are liable to all those diseases which usually affect the aorta; and seldom fail to be involved in a greater or less degree, where this vessel becomes the subject of lesion, either of an acute or gradual kind. They are also apt to suffer from certain other morbid changes, which appear to be more especially the results of their peculiar situation and structure. They are liable to partake in nearly the whole of the changes which result in acute aortitis, and have, in such cases, not unfrequently been found obstructed by recent concretions of plastic lymph\*: indeed, all the fibrinous and earthy deposits which their tissues so often present must be considered as having been originally the products of acute or sub-acute inflammatory disease; but the red appearance which will so frequently be found to pervade their interiors cannot, in general, be attributed to any vital action; it usually appears

\* There appear to have been three Preparations exhibiting this condition in Mr. Langstaff's Museum.—See Catalogue, p.110, and the descriptions of Preparations, 418 and 438.

to have been produced merely by imbibition of blood from the aorta after death, or by the transudation of that fluid from the muscular structure of the heart. The more gradual changes to which the whole of the arterial sub-serous tissue is liable may be noticed in these vessels.

Any part of the fibrous tissue lining the sinuses of Morgagni may become the seat of cartilaginous or ossific deposits; but (excepting the lines of attachment of the sygmoid curtains to the arterial parietes, and the little elevated ridges on the aorta which correspond to the free margins of the valves) no portions of the hollows are so liable to these changes as are the orifices of the coronary arteries.

It is by no means rare to find deposits of this nature partially surrounding and obstructing these openings, and occasionally encircling them with a tumid ring, which nearly, and in some cases entirely, precludes the entrance of blood. I am indebted for a knowledge of this fact to my friend Dr. Joseph Ridge, who has observed and collected a considerable number of remarkable cases, in which the occurrence of the above change was succeeded by fatal results. But the mouths of both these vessels are not usually found equally narrowed; and where only one of them is affected, it is not certain that any very serious consequences are produced; as the communication by anastomosis\* between the right and left appears to be sufficiently free to enable the sound vessel to supply all the branches below the impediment in the diseased one; and closure of one vessel has been noticed to be followed by dilatation of the other. In the adult, their interiors are seldom entirely free from minute opacities, which are usually arranged in striæ corresponding to the course of the longitudinal fibres of the sub-serous laminae between which they are situated. In advanced life, it is common to find bony deposits scattered at intervals throughout their whole extent: some of these frequently attain a very large size, appearing as narrow elongated masses, lying parallel to the axes of the vessels; rarely surrounding the canals with complete calcareous rings, as do the old deposits of the smaller arteries of the extremities, but often attaining a bulk sufficient either to close the vessels completely or to leave

\* If water be carefully injected into one of the coronary arteries, it very soon begins to escape freely from the orifice of the other.

a very narrow and irregular passage for the blood; while the less rigid portions of the tubes become greatly dilated, and in this state occasionally suffer rupture. Except in extreme cases, this condition of the coronaries is not invariably followed by much atrophy of the muscular substance of the heart; for as the minuter ramifications of the arteries generally continue comparatively free from disease, a sufficient quantity of blood permeates the strictured vessels (providing the circulation remain tranquil) to maintain the nourishment of the organ. The coincidence of this state of the coronary arteries with the symptoms of angina has long been observed; and it appears probable that the sudden attacks of syncope, to which aged persons are frequently liable, are, in a great proportion of cases, attributable to the same cause.\* Large collections of atheroma between the layers of the sub-serous tissue are not very frequent in these arteries: still, we do occasionally meet with specimens where this matter can be pressed through ulcerated openings in the internal membrane of the vessels, in that semi-fluid state under which it has, by some Authorities, been mistaken for pus. From the long-continued influence of some of the causes of undue distention alluded to above, the coronary arteries are liable to suffer permanent dilatation: they then either become greatly widened throughout their whole extent, or acquire an irregularly varicose appearance, similar to that which is occasionally noticed in the superficial arteries of the scalp: their tortuosity is also greatly increased, and occasionally (the surrounding adeps becoming absorbed) they project so greatly from the surface of the heart as to appear to be attached to that organ only by a fold of pericardium. Occasionally, this dilatation is followed by rupture of one of the arteries; of which fatal result examples may be met with in

\* Various forms of heart-disease have been considered to produce syncope, by preventing due access of the blood to the coronary arteries. The well-known experiments of tying these vessels, and of throwing water into their canals, may seem to account for this result, upon a physiological principle: but the whole of the experiments of this kind appear to have been open to the objection, that the cessation of the cardiac pulsations which resulted from the operations was probably dependent as much upon the injury necessarily inflicted, in the course of the experiments, upon the plexuses of cardiac nerves which surround the coronaries, as upon the subsequent arrest of the proper supply of blood to the muscular tissue of the heart.

almost every collection of morbid anatomy : but the occurrence of that accident generally appears to be long delayed by the increased strength which the sub-serous laminæ acquire during the time in which the vessel is undergoing the process of dilatation ; and it is probable that, in most of the cases where this accident takes place, it is immediately dependent either upon inflammatory softening or ulceration of the inner tunics of the vessel. I believe one of the most frequent causes of dilatation of coronary arteries to be, the deposition of a large quantity of fat within the interstices of the muscular tissue of the heart, which appears to produce here (as a similar process clearly does in other parts of the body) a diminution in the capacity of all the minuter capillaries distributed within the organ ; and hence the main trunks, although sufficiently furnished with blood, become incapable either of transmitting their contents with freedom, or of supplying the heart with its proper nutriment ; and accordingly, the large branches of these arteries suffer marked dilatation, while the cardiac muscular tissue becomes pale, softened, and atrophied : and hence arises one of the most frequent causes of rupture of the heart. It has become a subject of remark, that in the cases where death occurs from sudden rupture of one of the heart's cavities, the whole of the surface and furrows of the organ will generally be found loaded with adipose tissue ; and (judging from a considerable number of specimens in the various metropolitan museums) we may also add, with the coronary arteries considerably dilated.\* It may not be altogether unimportant to bear the above facts in mind, with regard to the application of remedial measures in these cases. It is by no means unusual to find elderly persons of obese habits of body complaining of violent palpitation, with

\* The coincidence of a fatty condition of the heart with wasting and lacerability of its muscular tissue has been frequently noticed ; and the effects of collections of adipose matter in embarrassing the heart's action, and giving rise to palpitation, is generally and even popularly understood ; but it appeared necessary to offer a view of the precise manner in which these effects are produced, as a guide in ascertaining the indications of treatment. Dr. Marshall Hall considers that the pressure of adeps upon the main trunks of the coronaries produces an impediment to their circulation ; but (as I have stated above) I believe that, in the majority of such cases, the larger branches of these vessels will be found perfectly free and in a more or less dilated condition, or with marked traces of having undergone undue distention.

sensations of impending suffocation, after any sudden exertion or emotion, the application of cold to the surface of the body, or, in fact, any action which tends to determine an unusual supply of blood to the heart. In these persons, the pulse is usually weak, while percussion and auscultation shew that their hearts, although large, act feebly; the sounds being indistinct, but free from irregularity or other abnormal character. This train of symptoms is probably often dependent upon an advanced degree of that condition of the heart which I have last described; and I have little doubt that the difficulty of breathing, which nearly all extremely corpulent persons experience upon unwonted exertion, is mainly attributable to less degrees of the same changes. Acting upon this course of reasoning, I have found that the adoption of a plan of treatment calculated at once to procure absorption of a portion of the superfluous fat of these patients, and to diminish the quantity of their circulating fluids, has been followed by an acquisition of increased cardiac power, as evidenced by a stronger pulse and an entire cessation of the suffocative attacks during very long intervals.

OBSERVATIONS  
ON THE  
DIGESTIVE SOLUTION OF THE ŒSOPHAGUS,  
AND  
ON THE DISTINCT PROPERTIES OF THE TWO ENDS  
OF THE STOMACH.\*  
BY T. WILKINSON KING.  
~~~~~  
WITH A CASE,  
BY MR. JOHN COMLEY.

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SUPPOSING the opinions maintained in a former Paper deserving of corroboration, and that the following case offered opportunity for a useful comment or two, I wished to connect them together: and I feel obliged to Mr. Comley for leave to employ his hasty notes of a case which is hardly the less interesting for being still of somewhat doubtful explanation:—

“M. CURTIS, a cabinet-maker, aged 24, of middle height, fair complexion, and very muscular make, had complained of pain in the epigastric region, sickness, loss of appetite, and flatulence, for many months. He had been a very hard drinker for several years. He went to a public supper, with his fellow workmen, on September 28, 1842; complained of feeling sick about 9 o'clock, and left the supper-table soon afterwards. He vomited slightly and returned home, but could not walk without assistance. His wife then gave him some castor-oil. His medical attendant was sent for at 3 o'clock the next morning. He complained of severe pain about the epigastrium, and great difficulty of breathing: the abdominal muscles were very rigidly contracted: the respiration was very laborious: he was sitting up in bed, and leaning forward on his hands;

\* Vide Guy's Hospital Reports, Vol. VII. p. 129.  
Vol. I. 1

his countenance anxious, and pulse soft: bowels not acted on by the castor-oil.

Pulv. Ipecac. ʒi. Pulv. Ant. Pot. Tart. gr. ij. stat. sum. Ol. Ricini ʒi. post vomit.

Tinct. Opii m. xv. Sp. Æth. Sulph. m. xx. Mist. Camph. ʒss. omni hora sum.

Hot towels to be constantly applied over the stomach.

"At half-past 7 o'clock, it was found that the emetic had had no effect: the pain was less: the difficulty of breathing increased: the face, throat, and chest were distended, from emphysema: pulse 100, and weak. Another emetic was administered, and an injection of salts and senna thrown up, both of which were retained: the stomach-pump was used at 10 o'clock, with no effect. He died at 12 o'clock.

"The post-mortem examination took place the next morning at 8 o'clock.

"EXTERNAL APPEARANCES.—The head, chest, abdomen, and scrotum, emphysematous: intense rigidity of the abdominal muscles; so much so, that not the least impression could be made on them. On making an incision from the neck to the pubes, air escaped with a whizzing noise; and a wound having been made in the epigastric region, the stomach protruded through it: the cartilages of the ribs on the left side being divided first, fluid of a dark and offensive character issued from the chest. On raising the sternum, inflammation was discernable on the pericardium. Here I must remark, that on puncturing the chest, the stomach instantly receded from the aperture from which it had burst forth. The lung on the left side was contracted; and castor-oil floated on the fluid in the pleura. A large rent was discovered in the œsophagus, as it passes through the diaphragm to enter the stomach, filled up with ingesta from the stomach. There were also portions of food at the posterior part of the chest. The lungs, on both sides, seemed congested. On opening the pericardium, small portions of lymph were visible, of a plastic character: heart healthy: the stomach and intestines enormously distended with gas: the liver slightly myristicate: kidneys healthy.

The stomach was brought to Guy's Hospital, and is preserved, Prep. 1799<sup>46</sup>. Its left end was softened by digestion, if not absolutely perforated: and it is not possible (for me) to

say, if there be a rupture, where the post-mortem solution ends, and where laceration begins. I think, the probabilities considered, there was no rupture."

The evidence of a rupture having been effected during life, from any cause, is at least defective; and this Case may fairly be ranked with that recorded by Boerhaave (vide Note, p. 144 of my former Paper).

The orthopnoea, superficial emphysema, and pericarditis, seem sufficient and solid grounds on which to build an explanation of the probable cause of death. The last indicates inflammatory disposition; and the first, a positive obstruction to respiration. It may be advanced, that the patient was carried off by the pericarditis, or some deeper inflammation of the heart; but, judging from what I have before seen, I rather suppose the case was one of sudden inflammatory tumefaction of the larynx, which indeed is a common cause of death, though little noticed. The pericarditis began before the dyspnoea; and I impute to the latter the production of emphysema, though by no means definitely. We know that violent efforts of respiration rupturing the air-tube do cause the extravasation of air into the cellular tissue, as well as the fracture of a rib. In the Case here related, the air seems to have been diffused from the neck. It is not much to be surprised at, that, with inflammation already begun, eating and drinking should have precluded all benefit from the remedies.

I still continue to find different traces of digestive solution as frequent, proportionably, as I have before stated; and the appearances in the Œsophagus indicative of regurgitation, when attended to, become more numerous. Bilious fluid, and a yellow tinge of the lining membrane, different tints of grey discoloration, portions of half-digested solid in any part of the tube, acidity, and very often a peculiar opaque whiteness of the cuticle (the precursor of solution, I think), besides the evidence met with at times in the mouth and nares, all testify to the same train of events.

I have found the abrupt line between the digested part of the stomach and the rest so frequently, that it seems very astonishing that others have not commented on it.

It has never seemed to me very available to inquire what are



the cases in which gastric solutions are most likely to occur after death. Doubtless it is necessary that some active digestion be in progress immediately before death; and beyond this the effects appear in due proportion to the functional vigour of the individual.

Dr. Hodgkin, from whom, as my first preceptor in pathology, I learned to know the common appearance of digested stomach (according to Hunter), was accustomed to remark, that cases like psoas-abscess manifested these changes very strongly; but I do not suppose the fact has more meaning than this—that the digestive power, in many such instances, continues good to the last. I conclude that, both among animals and men, the vegetable-feeders do not evince so much power of digesting the substances of their own stomachs after death as flesh-feeders; yet, in Negroes in Jamaica, whose principal food is farinaceous, I have seen active gastric solution after death.

M. Louis's facts, gathered from various sources, seem to furnish good reasons for establishing different conclusions from those I stated he has assigned: they are, I think, a positive confirmation of the view I have taken. In his account of typhus, nearly one half of the fifty Cases examined after death shewed digestive softening of the stomach in different degrees. In his account of the yellow-fever at Gibraltar, the œsophagus was found deprived of its lining, more or less, in most fatal cases.

In a manuscript report of a series of cases of yellow-fever (under the care of Assistant Staff Surgeon, C. Gill, at Stoney-hill Barracks, Jamaica, 1819), I have it recorded, that often the stomach, besides containing black blood, as in Louis's accounts, had its coats exceedingly thin, so as to be almost transparent; the lining being abraided.

Lastly, I must remark, that, considering the extreme activity of the gastric-juice, as manifested in its actions on the coats of the stomach and œsophagus, and also on adjacent viscera in the abdomen and chest, and then remembering that the like peculiar effects are never found in the right half of the stomach, we have almost indisputable evidence that the solvent is not produced but by the left end of the organ.

A CASE  
OF  
GLANDERS IN THE HUMAN SUBJECT.

By H. M. HUGHES, M.D.

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**P**ATIENTS are not very unfrequently admitted into the hospital, whose illness is supposed to be produced by the infection or inoculation of poison derived from the lower animals. The supposition, often primarily induced by the anomalous character and progress of the symptoms, is generally confirmed by inquiries into the origin and history of the complaints, and the habits of the individual. To give a faithful general history of the regular course of such cases would be difficult, as one of their characteristic peculiarities consists in the irregularity of their progress, in the anomalous symptoms they present, and in the discrepancies observed in them, when compared with the more common forms of disease, to which they otherwise bear some general resemblance. One feature is, however, common to them all. The patients have been all more or less, directly or indirectly, exposed to the liability of inoculation by putrid or diseased animal matter. One of them, a short time before his illness, was engaged in moving some barrels of salt meat, the odour of which proved that the antiseptic processes adopted had not been effective in preventing partial putrefaction : others have been occupied as tanners, knackers, butchers, horse-keepers, cab-drivers, or coachmen ; or have been employed in packing or handling imported skins, or imperfectly-cured animal provisions.

These patients have fever of considerable but very variable intensity, often remittent, frequently irregularly intermittent, and constantly accompanied with a moist state of the skin. They almost always complain of severe pains in the back, limbs, and joints ; and often believe and represent themselves to be suffering from rheumatism. The complaint has not,

however, the general aspect of that affection. The joints are not, in the first instance, swollen, red, and tender; the tongue has not the loaded, white, moist, and flannel-like appearance; and the skin, though moist, is not covered with a copious perspiration of the peculiarly sour odour common in that complaint. Pain of the head, and especially of the forehead, is often troublesome; delirium exists at night; the tongue is somewhat dry and red, at least at the tip and edges; the conjunctiva is injected; and the whole of the mucous membranes congested and irritable—symptoms which lead to the probable supposition that the disease is simple continued fever. But the absence of some of its ordinary accompaniments causes doubts to arise in the mind of the attendant: the skin is not constantly dry, pungent, and hot but is at one time hot, and at another moist, greasy, and of natural temperature; there are no maculæ, and no petechiæ; and though the face is flushed, the countenance has not the heavy, stupid, half-drunken, “puzzled” expression of common fever. While the physician is perhaps still undecided as to the origin and nature of the malady, a local swelling occurs upon the trunk, or more commonly about one or more of the joints; or erysipelas appears upon the forehead, cheek, or neck. The tumor slowly suppurates, or the erysipelas is followed by an ill-defined abscess of the cellular membrane. The parts heal, and the patient for a time appears to improve in health and strength; when tenderness is felt in another part, and one or more tumors are again discovered, slowly suppurate, and discharge their unhealthy contents. The parts heal, and the patient is again temporarily restored: his improvement is but brief; his quiet is but of short duration; other tumors again and again appear: the process is repeated, till his spirit is broken, his energy lost, and his constitutional power destroyed. The tumors have usually no definite arrangement, and certainly are not confined to the course of the veins and absorbents: they are, on the contrary, seen at the same time, or in succession, upon the right arm and left leg, the axilla of one side and the groin of the other, the instep, and the sub-maxillary space. Most commonly the poor patient, already nearly exhausted by the repeated drains upon his system, caused by the discharge from the abscesses, is ultimately carried off by

an attack of diarrhoea. More rarely, an individual, after a long and tedious convalescence, slowly acquires strength, and is at length discharged; cured indeed of his complaint, but in a condition so shattered as to be unable for some time to resume his ordinary occupation.

These cases bear a considerable resemblance to those which have been reported as instances of chronic farcy; but I am not aware that their common origin has been proved, or attempted to be proved, at least in this country.

Though such examples of disease as those to which I have briefly referred are not, as I have said, very unfrequently seen in the hospital, I believe that only two cases of well-marked acute glanders have been admitted since it has been distinctly ascertained that man is liable to that fearful complaint. One of these cases will be herein related. The other occurred in Nov. 1837, during my temporary absence from town in consequence of illness: I am therefore unable to give any account of it from personal observation. Some particulars of the case were however recorded in the *Medical Gazette*, Vol. XXI. p. 549, by Mr. Denham, one of the pupils of the hospital at that time; and a model, which I understand is a very exact and admirable portrait of the individual as well as of the disease, was taken by our talented artist, Mr. Towne, and is conspicuously placed in the Museum\*. To those who have not seen an example of the disease, and who may not have an opportunity of examining the model for themselves, it may be useful to append a short verbal description.

The individual is represented with the scalp shaved and tumid, and the head slightly turned to the left side. The eyes are both closed by a dusky red swelling of the eyelids, forehead, and cheeks: a considerable tumor exists in the right submaxillary region, the skin of which is of a deeper hue than natural. On the face, trunk, and arms, not upon the scalp, are irregularly and unevenly scattered small lurid tumors, only slightly elevated above the surface, and varying in size, from a section

\* I am informed by Mr. Brereton, who saw the case, and who then was, and still remains, a very industrious student and acute observer, "that two lancets armed with matter from the blebs were sent to the Veterinary College for experiment, with a request that we should be favoured with the result. Nothing, however, was ever communicated."

of a hedge-nut to that of a pigeon's egg. Freely interspersed among these are small elevations of the cuticle, the size of which ranges from that of a tare to a large pea; they are plump, rounded, and distended with a yellowish and opaque fluid. From the eyelids, nose, and mouth is seen flowing a thick viscid fluid, of the colour, appearance, and seeming consistence of thin honey; some of which is transparent, but which is generally opaque; and a portion of which is seen adhering to the under-surface of the tongue, through the half-open mouth.

For the particulars of the following case, occurring previously to the admission of the patient into the hospital, I am indebted to the kindness of my fellow-pupil, Mr. John Comley, resident Medical Officer of the Eastern Dispensary, who took considerable pains in investigating the circumstances attending the infliction of the injury; but whose inquiries were, I believe, not successful in obtaining other information, than that a horse affected with "black farcy" had been admitted into the yard the day before the accident; and the general fact, that glandered horses are frequently slaughtered at the establishment. Mr. Comley's history, generally in his own words, is as follows:—

Michael Ginivan, aged 40, a horse-killer, was flaying the leg of a horse recently killed, when his knife slipped while his attention was temporarily withdrawn, and inflicted a wound in the fore-arm of the *left* side. On the next day, a cord-like enlargement made its appearance, leading from near the wound to a painful swelling on the inner border of the biceps muscle, just above the elbow. Accidents of this kind, and consequent absorbent inflammation, being common among the men so employed, and frequently detaining them from their work for a few days or weeks, this individual went to a surgeon, who simply dressed his wound, and gave him some aperient medicine. He stayed quietly at home, and thought but little of the accident or its consequences till two or three weeks after its occurrence, when he began to suffer pains in different parts of his body resembling those of rheumatism, and painful swellings arose in his *right* arm and leg.—Mr. Comley seeing him in the yard, to which he had gone to see his

master, and struck by his peculiar appearance, gave him a Letter for the Eastern Dispensary; and took him under his own care, September 23, 1842, the twenty-fourth day after the accident.—He was robust, muscular, and apparently of good constitution; and for the last ten months has adopted “the total-abstinence principles,” though he had previously been in the habit of drinking to excess. The countenance was anxious and depressed, but “irritable, as if labouring under the effects of poison;” the eyes sunken; conjunctiva slightly jaundiced; pupils dull and sluggish; intellect clear; tongue flabby; bowels regular; pulse 60, with little power: he had no appetite: the respiration was not disturbed. The wound in the fore-arm was superficial, with an inflamed surface, and hardened base: two or three hardened lymphatic vessels led from the wound to a large and pointed tumor on the inner edge of the biceps, above the internal condyle. There existed also a deep and fistulous wound over the first phalanx of the little finger. The glands in the axilla were not affected. A tumor similar to that on the *left* arm existed on the centre of the *right* fore-arm, and also on the *right* thigh: they were all acutely tender to the touch.—Ordered, a nutritious diet, with a pint of porter and six ounces of wine daily; to take an alterative powder of rhubarb and calomel every other night, and an aperient draught the following morning; decoction of bark  $\frac{3}{4}$  iſs. and carbonate of ammonia gr. v. three times a-day.

25th day, (after which he was seen at his own house,) he complained of pains in the whole body, and was quite unable to walk: the nostrils were free; the pulse 80, and soft: there was no other change; and he was ordered to continue his remedies.

27th day. He felt stronger, though he still had no appetite for his food: the general pains were less severe, and tenderness of the tumors less acute: pulse 60: bowels open.—To continue as before.

28th day. Was better: the tumors, still less tender, had decreased in size; that on the thigh being alone troublesome. A cold evaporating lotion was now applied; and he continued the same medicines, with a steady but slow improvement, till the

35th day, when he was not nearly so well : the pain of the right leg was very severe, and prevented both motion and sleep he had also a pain in the back, which was referred to the right kidney : the urine was not examined : he had some cough, unattended with expectoration, but accompanied with some crepitating rattles in the posterior and inferior portion of the *right* side of the chest: the countenance was again anxious; the pulse 80, full and sharp; the skin moist; the bowels regular.—Ordered to discontinue the wine; to repeat his alterative and aperient medicine; and to take sesquicarbonate of soda gr. x. tinct. of orange ℥i., and compound infusion of gentian ℥i. three times a-day.

37th day. The cough had subsided, and the breathing was natural: the expression of countenance much improved.—To continue his medicines, and to resume the wine.

41st day. He was again not so well: he had now very acute pain on the inner side of the *left* knee, which disturbed his sleep at night. Eight leeches, and poppy fomentations, were ordered for the knee; and the other medicines to be continued.

42d day. Small tumors appeared on the left leg; and those of the arms were more swollen and painful.

44th day. Pains affected the entire body, and prevented sleep: the tongue was red in the centre, with brown-furred edges: the countenance was exceedingly anxious.—To take a pill of hydrochlorate of morphia gr. fs. and blue pill gr. ij. every night, and decoction of bark ℥i. with compound spirits of ammonia ʒfs. three times a-day.

Mr. Comley finishes his Report in these words:

“46th day. Much worse: symptoms putting on a typhoid character: the knee and leg much swollen, and acutely painful. As the nursing at home was bad, I proposed the hospital to him. He acquiesced very willingly; and on the

“47th day he was admitted into Guy's Hospital.”—He was placed in a room by himself, and visited about half-an-hour after his admission. The expression of his countenance was then moderately anxious, and his manner somewhat excited: there was no suffusion of the eyes, no increased injection of the conjunctiva, and no discharge from the nose or mouth. There existed a considerable swelling about the *right* knee,

which was rather red, painful, and tender under pressure, but appeared to contain no defined collection of fluid. Upon different parts of his arms and legs he had six or eight tumors, oval, soft, and about the size of half a pigeon's egg; some of which only were tender, but all evidently fluctuated under pressure, and over all the skin itself was of the natural colour and appearance: the tongue was clean and moist: the pulse 84, of moderate power: the respiration unaffected. Ordered,

Sesquicarbonate of Ammonia gr. v. Decoction of Bark  $\mathfrak{z}$ iss. every six hours.—A Draught, with Tinct. of Opium, m xx. in Camphor Mixture, at Bed-time.—Two Pints of Porter and  $\mathfrak{z}$ iv. of Wine, daily; with good Beef-tea and Arrow-root for Food; and Fomentations to the Knee.

48th day. The knee was less swollen, and less tender; but the small subcutaneous tumors had slightly increased in number: they were not larger, or more tender: the skin covering them was still free from discoloration. He had passed a restless night, with some wandering delirium: the bowels had been relieved: the tongue was still clean and moist; and the pulse 84, full, and of good power. To continue as before.

49th day. He had passed another disturbed night, and appeared considerably depressed: the pulse had increased in frequency, and decreased in power: the *left* eye was closed by a purplish-red tumefaction of the eyelids: the tongue was rather dry, and at the tip and edges more red than natural: the bowels had been opened twice: the knee was much less swollen; and the tenderness about it was now trifling; but the small tumors had increased considerably in number. Several large flat elevations of the cuticle, containing an opaque yellow fluid intermixed with some which were smaller and acuminate, now existed, thinly scattered over the extremities. There was still no discharge from the eyes, nose, or mouth. Ordered,

Sesquicarbonate of Ammonia gr. v. Compound Tincture of Bark  $\mathfrak{z}$ i. Wine of Opium m v. Infusion of Serpentry  $\mathfrak{z}$ iss. every six hours.—The Night-draught to be repeated, with Tincture of Opium m xxx.—To continue the Porter, and to have  $\mathfrak{z}$ iv. of Brandy instead of Wine.

50th day. He had been dozing the greater part of the



night, and was heavy and somnolent when visited; lying with the mouth partly open, with a tongue dry and dark in the centre, and heavy but not stertorous breathing. The *left* eyelids were more swollen, and the left side of the face appeared oedematous. The *right* eyelids were also swollen, though to a less extent. The *right* knee had assumed its natural size and appearance; but the pustules had now appeared upon the face and trunk, and their number had very much increased upon the extremities. When more advanced, they were rounded, plump, yellow, and about the size of half a large split-pea: those which had recently appeared were smaller and rather pointed, containing yellowish opaque fluid, like some forms of varicella. Four only existed on the face; one of which was on the forehead, one on the left eyelid, one on the top of the nose, and one on the chin. When the right eyelid was raised, there exuded a little clear colourless fluid. From the nose spontaneously flowed a scanty, reddish-brown, and rather viscid secretion, which appeared to obstruct the respiration. No enlargement of the absorbent glands of the axilla, groin, under the jaw, or of other parts, could be discovered. The skin was now perspiring very freely, and the pulse was very feeble and frequent. The state of the pupils could not be ascertained, in consequence of the swelling of the eyelids. His external appearance now much resembled that of the patient of whom the model is preserved in the Museum, though the characters of the complaint were generally less strongly marked. Ordered,

To repeat the Mixture every four hours without the Opium :  
to have ℥viij. of Brandy : and to continue his Porter, Beef-tea, &c.

He continued in exactly the same state, excepting that he was very thirsty and drank freely till 9 o'clock P.M., when he had a little rattling in his throat, suddenly became pale, and ceased to breathe. It appeared probable that he was sensible to the last; as, though he could not be understood, he tried to talk, when his wife spoke to him in Irish. Permission was not granted to inspect the body, which was speedily removed by the friends.

The history of this person's disease before his admission into the hospital bears a striking resemblance (excepting the formation of abscesses) to those referred to at the commencement of this Paper. On the day of his death, his external appearance was very similar to that of the person formerly modelled in the Museum. It is to be remarked, that the small tumors of the skin appeared in numbers only during the last few days of the disorder, and that the pustules arose only three days, at most, before that event: it is also remarkable that at the same time the swelling near the knee, which obviously contained fluid, subsided. The treatment was adopted with the view of keeping up the power of the patient while the poison was thrown off from the system, or "the disease wore itself out"; but when the complaint assumed an acute form, it had little, if any, effect. Hitherto all the cases of the acute disease have, I believe, proved fatal. Is it not time, and would it not be expedient and proper, to adopt other means of cure; such as the free administration of mercury, and giving a free and early exit to all accumulations of matter?

REPORT OF CASES  
OF  
HERNIA,

ADMITTED INTO GUY'S HOSPITAL FROM SEPT. 1841 to DEC. 1842.

BY ALFRED POLAND.

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THE following Report comprises all the cases of Hernia admitted into Guy's Hospital during a period extending from September 1841 to December 1842: they are forty-five in number. An Appendix is also added, containing the details of four Anomalous Cases, which were admitted during the same period; and which, as they bear upon the subject of hernia, offer some very interesting points for consideration.

Many of these cases have been reported by Mr. William T. Iliff, Dr. Montague Pope, Mr. Berry, Mr. H. Baillie, and Mr. J. C. Forster: the remainder were furnished from the private Note-book of Mr. Edward Cock.

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CASE 1.

*Strangulated Oblique Inguinal Hernia—Operation—Recovery.*

THOMAS TUTTLEBY, aged 40: admitted into Lazarus Ward, under Mr. Morgan, on September 10, 1841: by occupation a labourer, of a remarkably healthy and robust appearance. States that he has been the subject of rupture for the last twelve years, for which he has worn a truss: notwithstanding this, it has frequently descended, but has always been reduced with facility. It appears that he has been working for the last three or four days harder than usual; that last night, according to custom, he took off his truss; and that about four hours ago he suddenly awoke and found that the hernia had descended, as he supposes, from his having turned in bed. He sent immediately for a medical man; who, being unable to reduce it, sent him directly to the hospital.

On admission, there was an oblique inguinal scrotal hernia on the right side, which was exceedingly tense, and about the size of a turkey's egg. He complained of pain in the part, as also a dragging

sensation at the scrobiculus cordis: his countenance was anxious, face flushed, pulse full and slightly accelerated: his bowels had been opened on the previous day. He was immediately put into the warm-bath, at a temperature of 100°, and the taxis employed, but without success. Freezing mixture was then applied until one o'clock in the afternoon. The man's countenance was then more anxious; his skin was hot and dry: there was now also frequent eructations, and attempts at vomiting: he complained of increased tightness across the scrobiculus cordis. The taxis was again employed, but entirely without success: a tobacco enema was thrown up, which soon returned. At two o'clock P.M. Mr. Morgan operated. The sac was opened, and was found to contain a portion of ileum, in a highly-congested state. There was some difficulty experienced in reaching the seat of stricture, owing to its being situated at the internal ring: however, on dividing it, Mr. Morgan succeeded in reducing the intestine.—He was put to bed, and was ordered,

Calomel gr. iij. statim. Mist. Efferves. 6tis horis.

Sept. 11. He passed a restless night: his pulse was full, quick, and incompressible: tongue furred: great thirst: heat, and dryness of the skin: there was slight pain about the wound, but none over the abdomen.—Ordered,

Venæ Sectio ad ʒvj.—Enema ex Haust. Sennæ statim.

5 o'clock P.M. Much relieved by the bleeding: the pulse is smaller and more compressible, but remains equally quick: his general febrile symptoms somewhat abated. Ordered,

Hyd. Chlorid. gr. ij. Opii gr. ss. 3tis horis.—Fotus Papav. c̄ Flor. Anthem. abdom.—Hirudines xxx. part. dolent.

12. His general symptoms much better: he complains of less pain about the wound. The injection which was given yesterday has operated upon his bowels twice, but not very satisfactorily.

Enema ex Ol. Ricini.—Hirudines viii. part. dolent.; et Pergat.

13. Pulse more tranquil; and he has passed a good night: he has had a solid motion, the first since the operation.

Hirudines vi.; et Pergat.

14. Another healthy motion has been passed: suppuration has commenced about the wound.—To omit the calomel, but to continue his effervescent medicine.

From this date he gradually convalesced: the wound healed up; his bowels were daily opened; and he left the hospital on the 15th of October 1841, with a truss.

## CASE 2.

*Tumor in the Left Femoral Region, resembling an Omental Hernia.*

ELLEN BRETT, aged 63: admitted into Esther Ward, under Mr. Cooper, on October 30th, 1841, at 12 o'clock at night. States that she is habitually constipated, and that her bowels were moderately opened yesterday morning; since which time she has suffered from pains in the abdomen, and nausea, but neither very severe. This morning she first perceived a tumor in the left groin, which she is certain did not previously exist. The tumor, with regard to its situation and general character, has every resemblance to a femoral hernia, excepting perhaps less tenderness about the ring than is usually met with. There is no tension or tenderness of the abdomen whatever. On manipulation, a portion appeared to recede, and it certainly diminished in size. She was put into the warm-bath, and then had,

Cal. gr. iij. Opii gr. iij.—Salts-and-senna injection.—Freezing mixture applied to the tumor.

Oct. 31. A very abundant motion followed the enema, but evidently from the large intestines: she is free from pain, and indeed from any symptoms. The tumor is the same as yesterday. She had some mist. magn.  $\bar{c}$  magn. sulph., which was soon followed by a motion, apparently from the small intestines.—To repeat the M. M.  $\bar{c}$  M. S.

Nov. 1. Bowels have been freely opened: no symptoms of any kind: tumor the same: seems to suffer from disordered alvine secretion and function.—Ordered,

Julep. Ammon.  $\bar{c}$  Pulv. Rhei C. t. d.

She left the hospital on Nov. 8, there being still a small swelling resembling an omental hernia.

## CASE 3.

*Inflamed Scrotal Hernia—Bleeding to Syncope—Reduction.*

THOMAS SALKELD, aged 15: admitted into Cornelius Ward, under Mr. Key, on November 3, 1841. When about four years old he received a severe kick in the groin, which was almost immediately followed by the descent of an inguinal hernia. He wore a truss till he was nine years old, when he left it off; and since that period the rupture has frequently descended. This morning it came down under exertion, and he was unable to return it as usual. On admission, about two hours after the descent, he was suffering great pain: the tumor was small, and situated in the upper part of the scrotum, on the right side: it was exceedingly tense and tender, and he could not

bear the slightest pressure. He was put into the warm-bath, and there bled to syncope; when the hernia was reduced without difficulty. He left the hospital on November 7.

CASE 4.

*Strangulated Oblique Inguinal Hernia—Operation—Death—  
Ruptured Intestine.*

CHARLES BLAKE, aged 21: admitted into Luke Ward, under Mr. Cooper, on November 18, 1841, about 4 o'clock in the afternoon. A fine, stout, and healthy man, living at Dulwich, where he is employed as a bricklayer's labourer. He states that he has been the subject of a rupture on the right side for two or three years, which he had never any difficulty in returning, excepting once, when it was down for three hours, but went up by his own efforts. He has never worn a truss.

About 7 o'clock this morning, whilst using great exertion at his work, the hernia descended, much larger than usual: this was immediately followed by a dragging pain in the lower part of the abdomen, with a sense of tightness across the umbilicus, and soon afterwards by nausea and frequent retchings. At half-past 10 A.M. he applied to a practitioner in the neighbourhood, who bled him to syncope, and used the taxis vigorously, without success: ice was then applied for some time, which having made scarcely any alteration in the tumor, the man was urged to obtain admission into a hospital; but he, being exceedingly averse to this, made violent but fruitless efforts to return the rupture.

At 4 o'clock in the afternoon he was admitted into the hospital. He seemed generally depressed: the surface of his body was cold; his countenance anxious; and his pulse feeble, small, and compressible. There was a large oblique inguinal hernia on the right side, occupying the upper part of the scrotum: it was uniform and elastic, excepting at the neck, which appeared to be rigid and puckered. He has had no motion since yesterday. Ordered, ice to be applied to the tumor, and an enema of haustus sennæ to be given.

7 o'clock in the evening.—There was not the slightest improvement, and Mr. Cooper operated at once. The sac was laid bare and opened: two or three ounces of clear serum escaped, together with two large portions of gelatinous fibrin. Nearly a foot of intestine was in the sac, excessively congested, but otherwise in good condition: the stricture was firm, and at some depth, which rendered it rather difficult to reach: it was divided, and the bowel returned with some degree of trouble.

At o'clock 10 P.M. he expressed himself somewhat relieved by the

operation: he was, however, very faint and restless, and the vomiting continued unabated: his pulse was scarcely perceptible.—Ordered,

Brandy and Soda-water in small quantities.

Cal. gr. i. Opii gr. fs. alt. hor.

Nov. 19, 10 A.M. Has passed a very bad night: bowels have not been opened: countenance anxious: pulse 105, small and compressible: pain and tenderness over the abdomen. Ordered,

Fomentations to the abdomen.—Enema ex Haust. Sennæ statim.

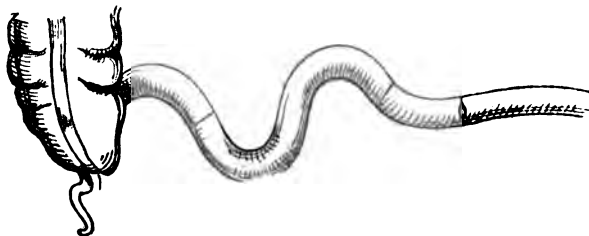
Cal. gr. iij. Opii gr. i. 3tis horis.

1 o'clock P.M. The pain over the abdomen has become more acute and general: he has constant vomiting of bilious matter, mixed with mucus.

Detrahetur Urina.—Hirudines x. abdomini.

4 P.M. Much worse: he is now in a state of collapse. He continued sinking in this condition, and died at about 4 o'clock on the morning of the 20th of November.

SECTIO CADAVERIS, November 20, 1841.—Wound little altered: sac containing some solid glue; and its neck had a defined round-edged opening, freely divided. There was much watery, opaque, bilious extravasation in all parts of the cavity of the abdomen; and also general deep-red injection, with thin layers and interstitial bands of solid adhesive fibrin. About ten inches of ileum had been strangulated: it was thick and dark, and coated with blood and false membrane, and was very distinctly defined. About three inches above the upper boundary-line of strangulation there was a transverse rent, half an inch long, and another of minute size. Adjacent to these were three or four infiltrations of black blood, varying about the size of half a large pea. These three inches of bowel were but slightly discoloured and thickened: they had evidently formed a portion of the original descent, and had probably been returned by the efforts of the patient; after which, ulceration, followed by extravasation, took place at the previous seat of constriction.



CASE 5.

*Incarcerated Oblique Inguinal Hernia.*

— Fox, aged 35: admitted into Cornelius Ward, under Mr. Key, November 25, 1841. Has had an oblique inguinal hernia for several years, which has frequently come down and been incarcerated for some hours. About two or three months ago he was admitted into this hospital in that condition; and the hernia was soon reduced, with the exception of a portion of omentum, which appeared to have become resident in the sac for a considerable time, and seemingly fixed there. He was furnished with a truss, so padded as to adapt itself to the portion of retained omentum, as well as to prevent further protrusion. About 1 o'clock this afternoon a portion of intestine descended, and could not be returned. He came immediately to the hospital, and was put into a warm-bath; when the hernia went up, and carried along with it the portion of omentum which had been so long down; so that the sac is now quite empty.—He left the hospital soon afterwards.

CASE 6.

*Injured Intestine, from a Blow upon a Hernial Sac.*

TIMOTHY JONES, aged 49: admitted on November 30, 1841, under Mr. Key.

(For the Report of this Case, see Guy's Hospital Reports, Vol. VII. p. 267.)

CASE 7.

*Incarcerated Omental Hernia.*

THOMAS FILLIAL, aged 45: admitted into Cornelius Ward, under Mr. Morgan, on December 2, 1841: a sailor, of general good health. Is quite sure that he was free from all hernial protrusion previous to this accident. He states, that on the 26th ultimo he received a blow on the lower part of the abdomen, which was almost immediately followed by a hernial descent through the external ring on the left side. This continued gradually to increase in bulk till the day of his admission, when it had reached the size of a very large fist, and was hard and tense: the testicle was detached from the tumor, being situated below and behind, and pushed over to the right side. His bowels do not appear to have been opened since the morning of the accident, excepting one or two small evacuations, apparently from the larger intestines. He has not had any constitutional symptoms whatever; neither has he complained of any pain or tenderness in the abdomen, in the tumor, or at the ring. The sac probably contains omentum with



serous effusion. He was bled, and put into the warm-bath. However, the hernia resisted all attempts at reduction; and being now somewhat inflamed and tender, twenty leeches were applied to the tumor. An enema was thrown up, soon after which he had a motion.

11 o'clock P.M. The tension and size of the tumor much diminished, but it could not be returned.

Pil. Col.  $\bar{c}$ . Cal. gr. xv. st.

Dec. 3, 9 A.M.—Has passed a healthy bilious motion during the night: no symptoms whatever. The fluid contained in the sac is apparently gone, leaving the sac somewhat flaccid: the contained mass feels like omentum. Ordered, more leeches to be applied.

4. No particular change in the size of the tumor: it is perhaps rather smaller. His bowels have again been freely opened.

9. He walks about: the size of the tumor is becoming gradually reduced. He left the hospital on December 14, with the tumor greatly lessened in size.

#### CASE 8.

##### *Strangulated Femoral Hernia—Operation—Sac not opened—Death.*

WINNIFRED JONES, aged 85: admitted into Esther Ward, under Mr. Morgan, on December 22, 1841: a healthy old woman. From her account, which is not very clear, it seems probable that she has had a hernia on the right side for several years, which has varied in size, and never given her any trouble. Yesterday evening, while at stool, she felt something give way at the lower part of her abdomen: the tumor became larger, and has since remained in the same state. She was somewhat sick at the time, and was again slightly so this morning. The tumor is about the size of an egg, and seems to consist principally of omentum: it is slightly tense, but not at all tender. There is neither nausea nor any other symptom whatever, excepting a sensation of tightness about the umbilicus. Her bowels have not been opened for three days; but she is often in the habit of going four or five days without an evacuation. Was put into a warm-bath, and the taxis was moderately applied, but without success. Ice ordered to the part, but to be separated from the skin by folds of lint; and an enema of salts and senna to be given. The exhibition of the enema was soon followed by three copious evacuations, containing abundant solid matter.

9 o'clock P.M. Tumor softer, but shewed no disposition to go up: no other symptoms than a slight pain in the abdomen.

To foment the abdomen.—White-wash poultice over the tumor.

Cal.  $\bar{c}$  Opii  $\bar{a}a$  gr. i. statim.

Dec. 23.—Passed a good night: has had no vomiting, but an

occasional nausea and eructations. There is more distress of countenance. The tumor is more tense and tender.—Ordered, M. M. c. M. S. statim. This staid on her stomach, but produced no effect on the bowels. About two hours afterwards she had a second dose, which she vomited. As she was very low, brandy was ordered.

Dec. 23, 8 o'clock P. M. Complains of more pain and tenderness in the abdomen, chiefly at the scrobiculus cordis: she is much worse, and has more distress, with frequent vomiting.

Mr. Callaway operated, by laying bare the sac, passing a director external to the neck, and dividing the stricture: the whole of the contents were returned without difficulty.—To continue the brandy and beef-tea.

Dec. 24. Very comfortable, and has passed a good night: the pain across the abdomen is quite gone, and she has had two liquid motions during the night. Pulse has risen, and her tongue is rather dry.

25, 9 A. M. Bowels have again been opened: there is now considerable febrile action, with full, quick pulse, dry tongue and skin, and great thirst.—Omits the brandy, and takes beef-tea and arrow-root. In the evening she appeared very low and weak.

26. Quite comfortable: wound going on well: has had four evacuations during the day.

27. Very weak and low.

28. She is to-day weak and irritable: the whole wound is sloughy. In the course of the evening she became worse: there was excessive restlessness and distress, constant heaving from the stomach of bilious-looking fluid, and a sense of weight and constriction at the pit of the stomach. These symptoms continued; and she died Dec. 29, about 10 o'clock in the morning. No inspection allowed.

#### CASE 9.

##### *Incarcerated Scrotal Hernia—Reduced.*

JOHN FREEMAN, aged 61: admitted, under Mr. Morgan, on December 29th, 1841. Appears to have had a reducible left scrotal hernia for several years: it was generally down, except when in bed: he has never worn a truss. This morning a larger volume descended, and could not be returned. Has no severe symptoms. He was put into the warm-bath, and ice applied. In a few hours the reduction was effected, and he left the hospital with a truss on December 30, 1841.

#### CASE 10.

##### *Strangulated Femoral Hernia—Operation—Sac not opened— Erysipelas—Death.*

JOHN SKETTERALL, aged 68: admitted into Cornelius Ward, under

Mr. Cooper, on December 29, 1841, at 2 o'clock in the afternoon : is a labouring man, and has lived rather hard. When young, he was the subject of a scrotal hernia, for which he wore a truss, and became radically cured. It appears that he has had a femoral hernia on the left side for many years, which was sometimes down, but had often disappeared altogether for weeks and months. He has not worn a truss for the last twenty years. On the 27th inst., while coughing, the hernia descended, and could not be returned. He had nausea and vomiting, with tightness across the umbilicus, and slight hiccough : his bowels have not been opened since the 26th instant. He has taken some pills, and had an injection : the taxis has been employed, without success.

Dec. 29. On admission, there was a large femoral hernia on the left side, about the size of a goose's egg, and much larger than it had ever been before : it was hard, tense, and bound tightly down by bands of fascia, thus giving it a lobulated appearance. There was slight tenderness over the femoral ring, as also over the abdomen, but no tension. His countenance is anxious, and he complains of great pain and sense of constriction at the scrobiculus cordis, and umbilicus. He was sick just after admission, and has frequent hiccough. Pulse is intermittent ; and the valves of the heart are unsound. He was put into the warm-bath ; the taxis was used ; and then ice was applied.

Hyd. Chlorid. gr. iij. Opii. gr. i. statim.

6 o'clock P.M. No change whatever in the appearance of the tumor. Mr. Cooper operated ; and without much difficulty divided the stricture external to the sac, and returned the contents, by which the man appeared relieved.

10 o'clock P.M. Was quite easy, and inclined to sleep.

Dec. 30th, 9 A.M. He is weak and low : there is no untoward symptom : his tongue is moist and clean : bowels have not been opened. Ordered,

Enema ex Haust. Sennæ, st.

The injection almost immediately returned, and was followed by a copious motion.

31. Another enema has been administered, which brought away a perfectly natural motion. Ordered, porter and nourishment.

Jan. 1. Bowels plentifully opened during the night : suffers much from cough : his pulse is intermittent : complains of some abdominal pain.

3. Very low and weak : there is an erysipelatous blush about the wound. Was ordered bark, and plenty of support.

*Jan 5.* The erysipelatous inflammation which commenced in the wound has spread on to the abdomen, thighs, and scrotum; which latter, together with the penis, is distended with serous effusion. There is great constitutional irritation, and some degree of fever of an atonic character. Ordered, fomentations and nourishment.

6. Scrotum sloughy: the prepuce is so infiltrated, that the water cannot be passed: it was therefore divided, and a catheter introduced. Is gradually sinking; and died at half-past 6 P.M. No inspection allowed.

CASE 11.

*Strangulated Scrotal Hernia—Operation—Peritonitis—Death.*

MICHAEL HAYS, aged 40: admitted into Luke Ward, under Mr. Cooper, January 1, 1842: married, and by occupation a blacksmith. Has been the subject of a reducible hernia on the right side for the last twelve years, and has occasionally worn a truss. This morning, while turning in bed, the hernia descended to a much greater extent than it ever had done previously, and could not be returned. There soon followed severe dragging pains at the umbilicus. About three hours afterwards, as his symptoms continued, he sent for a surgeon; who employed the taxis, but without success, and ordered him some medicine. This he vomited; and in the evening, the taxis still having no avail, he was sent to the hospital. On admission, there was an oblique inguinal scrotal hernia on the right side, which was large and soft, but very tense at the neck. He experienced a dragging sensation about the umbilicus, but had no vomiting, no hiccough, nor tenderness about the tumor. Taxis was applied; he was put into a warm-bath; and then had

Calomel gr. iij. Opii gr. i. statim.—Enema ex Haust. Sennæ.—  
Ice to the tumor.

11 o'clock P.M. Injection returned, bringing away some fecal matter: he has slight hiccough, but no sickness.

*Jan. 2, 10 A.M.* Hernia in much the same state: countenance anxious: pulse quick and sharp: no sickness. To leave off the ice. Ordered,

Calom.  $\bar{c}$  Coloc. gr. x. st.—Enema ex Haust. Sennæ.

Symptoms of strangulation became increased; and at 2 o'clock P.M. Mr. Callaway operated, by cutting down on to the external ring, dividing it freely, and laying bare the peritoneum at the neck of the sac, so as to remove all external cause of stricture. However, reduction could not be effected; and in the attempt to divide a fibre or two, which appeared to cross the neck, the sac was accidentally opened: this opening was then enlarged, and exhibited a coil of healthy

intestine which protruded. The finger could be readily passed into the abdomen; and the entire contents of the hernia, which consisted of small intestines, were passed up, with some little difficulty, by the finger: a compress was applied, and he was put to bed. After the operation, his pulse was quick and small, and his countenance extremely anxious. Ordered,

Calomel gr. iij. Opii gr. i. statim.

Towards the evening he had a motion: there was no abdominal tenderness; and his pulse had risen.

Jan. 3, 10 o'clock A.M. Bowels were freely opened four times during the night; but early this morning he exhibited symptoms of peritonitis, which have since rapidly advanced. Complains of great pain about the wound and in the abdomen, extending to the fundament: the abdomen is tense and tender: the pulse small, hard, quick, and sharp: extreme thirst, and great anxiety of countenance. Ordered,

Hirud. xxx. abdom.

Calomel gr. ij. Opii gr. ss. statim, et secundâ quâque horâ.

12 o'clock at noon. Pain and tenderness increasing: he has had an enema, which has brought away some feculent matter.

4 o'clock P.M. Pulse small and labouring: symptoms continue the same. Venæ sectio ad ℥xij.; during which the pulse rose: this gave him some relief.

10 o'clock P.M. Was suddenly seized with vomiting; immediately after which he expired. No inspection was allowed.

#### CASE 12.

*Strangulated Femoral Hernia—Operation—Intestine gangrenous, and freely opened—Death.*

ANN LACE, aged 54: admitted into Esther Ward, under Mr. Cooper, on January 2, 1842. Has always enjoyed good health, and is of temperate habits: has never been the subject of hernia. On December 29, whilst nursing a child, she felt something give way at the lower part of the abdomen, and was immediately seized with great pain and sickness. Fomentations, leeches, and poultices, together with some opening medicines, were administered. These had little or no effect in relieving her; and she continued in much the same state till Sunday, January 2; the symptoms, however, gradually increasing in severity. She was admitted at about 2 o'clock that afternoon. There was found a femoral hernia on the right side, about the size of a walnut, very hard and painful: her countenance was anxious; pulse small, and extremely weak. She complains of

sickness, but does not vomit; and has occasional hiccough: bowels have not been opened since the morning of 29th of December. She was placed in the warm-bath, and the taxis gently used, but to no effect. Ordered,

Calomel gr. ij. Opii gr. i. statim.

*Jan. 2, 4 o'clock P.M.* Her symptoms increasing. Mr. Callaway operated, by opening the sac, and the stercoraceous odour immediately announced the mischief that had occurred. The gut was of a very dark colour, and marked here and there by ash-coloured spots: it was freely laid open after the division of the stricture, and stitched to the skin. Warm-water dressing was applied, and support of all kinds ordered, together with brandy and wine, and an injection of beef-tea.

10 o'clock P.M. Anxiety of countenance considerably relieved: pulse extremely weak: the injection returned almost immediately.

*Jan. 3.* Passed a restless night: has vomited once, bringing up some bilious matter; hiccough not so frequent: pulse weak: no evacuation from the bowels. Enemata which have been given have immediately returned.

10 o'clock P.M. Slight discharge from the wound of faecal matter; countenance anxious: still very weak: no evacuation.

4. There has been much discharge of faeces from the wound. She took some egg and wine, which she vomited, although she retained some beef-tea and weak brandy-and-water. Appears fast sinking: pulse imperceptible: mind wandering. She never rallied; and died January 5, at 6 o'clock A.M.

*INSPECTIO CADAVERIS, Jan. 5.* The peritoneum was injected and congested, and presented a slight degree of inflammation of a very low atonic character. The hernial sac contained a knuckle of intestine (ileum), which had acquired adhesions to the mouth of the sac, the adhesions being soft and recent. The intestine below the strangulation was much contracted: that above was soft and flaccid, but by no means distended, the contents having passed freely by the wound during life. No extravasation had taken place into the peritoneal cavity, and there was no inflammatory effusion whatever.

#### CASE 13.

##### *Incarcerated Scrotal Hernia—Reduced.*

— Fox, aged 35. This patient was in the hospital six weeks ago, labouring under the same complaint, the particulars of which are given in a previous case. (Vide Case 5.) He was admitted in the evening of the 4th of January 1842, under Mr. Cooper. The hernia

had descended during the day, and could not be returned : it was not so large as on the former occasion. He was put into the warm-bath ; and afterwards he was ordered the application of snow to the tumor. In a few hours' time he reduced it himself, and soon went out.

## CASE 14.

*Strangulated Scrotal Hernia—Operation—Recovery.*

JOHN CURTAIN, aged 35 : admitted into Lazarus Ward, under Mr. Cooper, on January 23, 1842. Is married, and always has enjoyed good health. By trade a ropemaker, and in the habit of lifting heavy weights. States, that when very young he was the subject of a rupture, which he was told came on after a fall, and for which he wore a truss till he was five years old. It appears, that almost as long as he can remember he has had an irreducible omental hernia on the left side, subject to an occasional additional protrusion. His bowels are habitually costive, and have been extremely so lately. On Friday, 21st inst., about 11 o'clock A.M., whilst straining at stool, he felt something give way : he was then seized with pain and tightness across the umbilicus, and obstinate sickness : he found the rupture much larger than it ever had been, and the scrotum much increased in size. He went to bed, and took some opening medicines, which, however, did not relieve his bowels ; and as the sickness was unabated, he had medical advice. The taxis was used ; but being unsuccessful, he was sent to the hospital. On admission, on the 23d, at half-past 6 o'clock in the evening, there was a scrotal hernia on the left side, which was elastic and very painful, the skin covering it not at all discoloured. He appeared much depressed ; his countenance anxious ; pulse weak and irritable ; skin cool ; constant sickness, but no hiccup. The taxis was used, he was put into a warm-bath, and afterwards ice was applied.

At half-past 10 P.M. The symptoms being somewhat increased, and no impression having been made upon the tumor, Mr. Cooper operated. The sac was opened, and contained a considerable quantity of irreducible lumpy omentum, behind which was an additional portion of omentum, apparently recently descended ; and, inseparably adherent to it, a knuckle of intestine. The stricture was divided, and the intestine, together with the omentum to which it adhered, was returned, but the rest of the omentum was left in the sac. After the operation, he was ordered,

Calomel gr. ij. Opii gr. i. statim.

Jan. 24, 11 A.M. Has passed a good night : the sickness and pains have quite left him : his bowels were scantily opened about an

hour ago, having previously had an injection of house-medicine. At 1 o'clock in the afternoon he was ordered,

Magn. Sulph. ʒij. ex Julep. Menth. 2dis horis, donec alvus bene respond.

*Jan. 24, 3 P.M.* He had another injection, which soon afterwards produced a copious evacuation.

25. Bowels have been opened once.

26. Bowels plentifully opened: no bad symptoms.

*Feb. 14.* Has not had any untoward symptom: the omentum has sloughed off, and has produced some slight constitutional irritation: the wound is now nearly healed up.

24. Has had a low cachectic kind of erysipelas, extending from the wound over the abdomen and thigh, by which his powers have been much reduced, and from which he is now slowly recovering. He left the hospital quite well on March 29, 1842.

CASE 15.

*Strangulated Femoral Hernia—Operation declined, but afterwards consented to—Death.*

MATILDA MERRELL, aged 59: admitted into Esther Ward, under Mr. Cooper, on February 9, 1842. Married 40 years, and has had eight children, the youngest of whom is twenty-one years of age: always enjoyed good health. For the last twelve years she has had an irreducible omental femoral hernia; and frequently an additional protrusion has taken place, which has always been returned without difficulty: it has never been down for more than half-an-hour. Last night the rupture descended to a much greater extent than had ever occurred before, and could not be reduced. She was sick all night; but this morning, after taking a draught ordered her by a surgeon, the sickness ceased and has not returned. Bowels have always been regular: they were opened yesterday morning, and she had a motion in the night.

On admission, at half-past two in the afternoon, there was a femoral hernia of a large size, extending along the line of Poupart's ligament, from the femoral ring to near the anterior spinous process of the ilium, and apparently containing omentum and intestine. There is no pain or tenderness, or any symptom whatever. She states, that during the last half-hour that she has been in bed the tumor has become smaller and softer. Ordered,

Ice to the Hernia, and an Enema ex Haust. Sennæ.

9 o'clock P.M. No alteration in the size or appearance of the tumor: there is some slight nausea, great thirst, and she complains of general



shivering. The contact of the bladder containing ice has produced considerable lividity of the skin : a folded cloth was therefore placed between the bladder and the skin, and the ice was ordered to be discontinued after a short period. Warmth was applied to the feet and body.

*Feb. 10, 2 P.M.* Was slightly sick last night, and has felt more or less nausea : there is some distress of countenance, and a slight approach to tension and tenderness of the abdomen. The abdomen and hernia were ordered to be fomented.

11 o'clock P.M. Expresses much ease from the fomentation : she feels better, and has no sickness : the tumor is in much the same state. An injection has been given this afternoon, which brought away some fæculent matter.

11. Has been sick several times, and brought up a large quantity of fluid of a stercoraceous character. Her distress and abdominal pains and tenderness are increasing. In the afternoon she had

*Opil gr. ij. Cal. gr. iij.*

About 9 o'clock in the evening she was again sick, and the fluid was of the same character as before.—Ordered,

*Opil gr. ij. statim.*

12, 1 P.M. Sickness has ceased, and she is tolerably easy : the tumor is tender, perhaps from her own efforts to return it. Ordered,

*Opil gr. ij. Cal. gr. iij. st.—To foment the Hernia.—Enema ex Haust. Sennæ.*

The injection soon returned, with little or no fæculent matter. The operation was proposed and declined. For the last twenty-four hours she has felt as if her bowels were likely to be moved ; and in the evening she passed, by bowel, fluid with a slight fæcal odour, which seemed to be merely the secretion of the intestine, with a quantity of gelatinous mucus.

12 o'clock P.M. She now consented to the operation, which was performed by Mr. Cooper. The sac was opened, and contained a large quantity of omentum, partly of old standing, partly recently descended : the more superficial portion, which had been subjected to the pressure of the taxis, was congested, black, and crisp. Under the omentum was a knuckle of intestine, which was tolerably healthy, and seemed to have escaped injury. The stricture was by no means tight, and the intestine was returned without its division. The whole of the omentum was replaced in the wound, and the skin brought over it with ligatures.

*Feb. 13, 10 A.M.* Much improved in countenance, and is altogether much easier. She has had no motion : the pulse is good, but the

tongue dry. In the evening, and also in the night, her bowels were satisfactorily opened: her urine has been retained, and was drawn off.

14. Appears very weak, and complains of tightness across the chest, and difficult respiration: pulse feeble: tongue dry: has had an ammonia draught, and was ordered wine.

10 P.M. She is sinking, complaining of pain in the lower part of the chest and in the scrobiculus cordis: mucous crepitation in the chest. She died on February 15, at 1 o'clock in the morning.

INSPECTIO CADAVERIS, February 16.—External wound gangrenous and sloughy. On opening the abdominal cavity, there was evidence of peritonitis, of a low type, without plastic effusion: the intestines had an oily feel; and puruloid fluid, discoloured by cadaveric transudation, was in the pelvis. About four inches of the lower part of the ileum had a dark congested appearance, and the line of stricture still formed a deep indentation around the bowel: the intestine was not lacerable: the veins leading to it were much congested. A portion of omentum remained firmly fixed in the femoral ring. On injecting the intestine that had been strangulated and returned, the injection passed readily into it.

CASE 16.

*Strangulated Femoral Hernia — Operation refused — Opium administered — Symptoms relieved — Extravasation of Fæces under the Integuments — Protracted Death.*

JOHN MONDER, aged 70: admitted into Naaman Ward, under Mr. Cooper, on February 9, 1842. Is a seafaring man, and has always enjoyed good health. Appears to have had a small femoral hernia on the right side for about six years or more, which was about the size of a marble: however, he paid no attention to it, and can give very little account of it. He has occasionally worn a truss, but not during the last twelvemonth.

On Feb. 6, at 9 P.M., while using some exertion, he was suddenly seized with pain across the umbilicus and lower part of the abdomen, followed by sickness and shivering. He continued to be occasionally sick; but nothing was done for him till the 9th, when a surgeon was called in, who discovered a femoral hernia. His bowels had not been opened for four days: the sickness was still continuing, as also the pain in the abdomen: he was bled, and the taxis ineffectually used: he was then sent to the hospital. On admission, there was a femoral hernia on the right side, about the size of a pigeon's egg, elastic, smooth, and somewhat painful: integuments covering it not at all discoloured. The abdomen was somewhat full:

severe pain was felt at the scrobiculus cordis. He had vomiting and frequent hiccough; his pulse was small and weak; and the surface of his body cold and pallid. The taxis was applied without effect; and the operation then proposed, and declined. He was ordered,

Calomel gr. iſs. Opii gr.  $\frac{1}{2}$ . statim.—Enema ex Haust. Sennæ.—  
Ice to the tumor.

*Feb. 10.* No alteration in the symptoms: abdomen rather more tense: another injection was ordered, which returned, with a small quantity of fæculent matter.

At 1 o'clock, he had five grains of opium. This allayed the nausea, but had no other effect. Cold is still applied.

11 o'clock, P.M. Much the same. Pulse tolerably good: tumor has increased in size, and the surface thereof red and livid.—Fomentations to the tumor.

Opii gr. ij. statim."

11. Had passed a quiet night: he is in much the same state, and does not suffer from any one particular symptom. In the middle of the day he had an injection; and soon afterwards passed a fluid motion, which seemed to be from the small intestines.

9 P.M. Some degree of nausea, but no vomiting: he has just passed a small evacuation, consisting of fluid and a few lumps. Ordered,

Opii gr. ij. statim.

12. Is much the same, perhaps rather weaker: no pain or sickness: abdomen fuller. Had another injection this morning, which returned, mixed with blood and some small quantity of fæculent matter. In the course of the evening he passed two other motions, the last of which consisted of pure transparent mucus.

13. Remains in the same state: another enema was administered in the course of the day, but without effect.

14. During the night he had a natural motion, both as to quality and quantity, and has been slightly sick. He is now quite comfortable, and free from all symptoms. Tumor is the same. Had an enema in the evening, which soon returned, with a small quantity of fæcal matter.—Ordered,

Opii gr. i. horâ somni.

15. Feels quite well: tumor much the same: bowels freely opened.

16. Continues to do well: abundance of fæculent motions.

17. Bowels well opened: diffused redness over the tumor, which is becoming softer at one part: pulse more feeble.

19. Sac is evidently sloughing, is becoming larger, and is full of crepitating contents: the mischief is extending over the abdomen,

where fluctuation in the cellular tissue is distinctly felt: there is a good deal of constitutional irritation. The man had obstinately refused to allow an incision to be made: his bowels continue regularly opened: pulse much weaker.

Feb. 20. The extravasation has diffused itself over the abdomen: he is much worse in every respect: pulse weaker, and more rapid. He now consented to have the tumor laid open: the contents were decidedly fecal. He was ordered stimulus and support.

21. The discharge from the wound seems to be assuming a better character; but the man is low and irritable.

22. Fæculent matter has been discharged from the wound.

24. He now passes the greater part of his motions by the wound: gangrene has spread over the abdomen, and he is sinking. He lingered on, getting gradually weaker and weaker, and died on the 26th of February, at 5 o'clock in the afternoon.

INSPECTIO CADAVERIS, February 27, 1842.—The body extremely wasted and dry. The cellular tissue, over the entire hypogastrium, sloughy, with fecal infiltration. Fæces extensively extravasated throughout the right groin. Peritoneum slightly turgid, but presenting no other traces of peritonitis. A small portion of ileum, probably only a part of its calibre, about two feet from the cæcum, had apparently been strangulated, and adhered to the mouth of the hernial sac, with which it communicated by an opening in the gut. Some lean omentum also extended into the neck of the sac, which was closed by scanty feeble adhesions. The continuity of the canal of the intestine had evidently been restored, so as to allow the passage of its contents; and he appeared to have died from external fæculent extravasation and sloughing.

CASE 17.

*Incarcerated Omental Scrotal Hernia—Effusion into the Sac—  
Partially returned.*

SAMUEL BAILEY, aged 29: admitted into Cornelius Ward, under Mr. Morgan, on February 24, 1842: a policeman. Two years ago, after violent muscular exertion, he became the subject of an inguinal hernia on the right side; since which it has descended several times, and has sometimes remained down for two or three hours before he could return it: he has never worn a truss. On the evening of the 23d inst., while on duty, the hernia, which had not appeared for four weeks, descended: he walked about with it down for two hours, and then went home: he was sick all night, and during the greater part of the following day, the 24th inst. His bowels were well opened before the hernia descended; and he has had a small motion since. He has taken two doses of castor-oil: the first was rejected, but the second he retained. On admission, which was late in the

evening of the 24th, the rupture was large and tense, containing, apparently, omentum and intestine. He had a warm-bath, and the taxis was applied: he was then ordered,

Cal. gr. ij. Opii gr. ij. statim.—Ice to the tumour.—Enema ex Haust. Sennæ; which latter returned soon afterwards, with some scybalæ.

Feb. 25, 9 A.M. There is no sickness; neither has he any pain or fulness of the abdomen: the tumor is tense, but not tender. Ordered,

Calomel. gr. ij. Opii. gr. ij. statim.—To repeat the injection, and to continue the ice.

8 o'clock P.M. No alteration: the abdomen is rather fuller. Ordered,

Cal. gr. v. Opii gr. ij. statim; and an Enema.

26, 8 A.M. Has had two motions; the one following the injection; the other about three o'clock this morning; but neither of them contained much feculent matter. No change in the tumor: if any, it is somewhat redder, and more tense: abdomen fuller: no symptoms of strangulation.

9 o'clock P.M. Has passed a copious motion this evening, consisting of semi-solid feculent matter: abdomen soft: no symptoms whatever. The tumor is dark-coloured, more tense and tender: tongue moist: pulse good and soft.—Fomentations ordered to the parts.

27, 10 A.M. Has had a constant desire to evacuate the bowels during the night; but very little was passed: no symptoms of strangulation: the scrotum is red, tender, and infiltrated: there is less tension about the external ring; and the principal seat of constriction appears to be at the internal ring, as the sac can be distinctly traced along the inguinal canal, and is hard and tender. Above the internal ring, in the abdomen, there is a hard projection. Ordered,

Calomel gr. v. Opii gr. ij. statim; and afterwards some Castor-oil.  
—Leeches to be applied in the course of the canal, and warm fomentations.

8 o'clock P.M. His bowels have been opened several times; and in the motions there is abundant evidence of the castor-oil which he had swallowed: the scrotum is enormously swollen, partly from effusion into the hernial sac, partly from cellular infiltration.

28, 9 A.M. Tumor softer: has passed a good night, and feels well: there are no symptoms, and he has not had any motion.

9 P.M. Bowels have again been freely opened by castor-oil: he has a white-wash poultice over the scrotum.

March 2. Bowels have been freely opened by castor-oil: he feels well and easy. The cellular infiltration of the scrotum has

subsided; and the sac itself, together with its neck, is softer; but none of the contents appear to have gone up. The hernia is about the same size as on admission, although less tense.

*March 7.* Mr. Cock succeeded in returning the greater part of the contents of the sac, consisting entirely of omentum: the sac itself is much thickened; and the testicle, which is at the lower part of it, is enlarged and shapeless, owing to the thickening around it: the lower part of the omentum seems adherent to the bottom of the sac.

13. The size of the tumor is greatly reduced; but there still remains a good deal of omentum in the ring, and there is a general thickening of the surrounding parts.

24. Has been about the ward for the last few days, wearing a suspender, which embraces the scrotum closely. There seems to be no tendency to a fresh descent; but the sac remains occupied by a considerable portion of irreducible omentum. He left the hospital on March 25, 1842.

Mr. Cock saw him on the 29th March: he had resumed his police duty, and was wearing a suspender, which, however, did not prevent an occasional descent, in addition to the omentum adherent in the sac. He was recommended to wear an appropriate truss.

CASE 18.

*Strangulated Femoral Hernia—Operation refused—Survived eleven days.*

BARBARA ANSTAY, aged 52: admitted into Esther Ward, under Mr. Morgan, on February 24th, 1842, in the evening. It appears she had a hernia about thirty years ago, when pregnant with her first child; since which it has frequently descended. She has never experienced any inconvenience, neither has she ever worn a truss. She also states that she is not aware of having had any protrusion for some years: however, her whole account is so confused and vague, that little can be relied upon. Yesterday afternoon, after exerting herself all day in washing, she felt a pain in the right groin, and found a tumor there. She was very sick all night, and suffered much from abdominal pains. This morning a surgeon was sent for, who endeavoured to reduce it, and gave her castor-oil, calomel, &c., without success: she has been vomiting all day. On admission, she was put into the warm-bath, and was seen by Mr. Cock at 10 o'clock P.M. The tumor was then said to be smaller and less tense than it had been: it was small, not very tender, and flaccid; and felt as if it contained a knuckle of empty intestine, or a small portion of omentum. She had not been sick for the last hour, and was easy, complaining only of a sense of constriction across the umbilicus. Her bowels do

not appear to have been opened for the last two or three days. No impression could be made on the tumor. She was ordered,

Calomel gr. v. Opii gr. iij. statim.—Enema ex Haust. Sennæ.

Ice to the tumor.

Feb. 25, 9 A.M. She was sick immediately after taking the pills; and the injection returned, with some hard lumps of fæculent matter. Since that she has had

Calomel gr. ij. Opii gr. i. twice; and ice has been kept constantly applied.

Vomiting did not occur afterwards; but she is now weak and low; pulse is very feeble, and upwards of 100; tongue dry; intense thirst; some nausea: she has not passed any water. The abdomen is rather fuller, but not tender: the tumor is much the same, although somewhat more painful.—Soon afterwards she was ordered opii gr. ij.

At 1 o'clock P.M. Mr. Morgan proposed the operation, which she refused.

9 P.M. Much the same: no sickness. Ordered,

Calomel gr. v. Opii gr. ij. statim.—Cal. gr. i. Opii gr.  $\frac{1}{2}$  4tis horis.

26th, 8 A.M. No particular symptoms: there is more fulness of the abdomen. She had an enema last night, which returned without any motion.

9 P.M. Much the same: continues the pills every four hours.

27. In the same state. She was obliged to discontinue the pills, as the effort to swallow them induced vomiting. She has no marked symptom of any kind, excepting occasional vomiting. She has not had any motion.

28. She was frequently sick during the night, and vomited a dark bilious fluid: otherwise she is much the same. Has passed a small quantity of blood by bowel.

9 o'clock P.M. She had vomiting of a stercoraceous character during the day. Ordered,

Opii gr. ij. statim.

*March 1.* Has not had any vomiting since taking the pills.

2. She has been vomiting during the greater part of the day: she is very weak: her tongue, however, is moist: there is little distress of countenance: the abdomen is soft, and not tender: the tumor is commencing to be inflamed, and it feels softer, as if suppuration or sloughing of the intestine was about to ensue. Ordered,

Opii gr. ij. h. s.

3. Sickness is relieved, and did not recur during the day.

March 4. She had opii gr. ij. last night. She has no sickness, but constant nausea, accompanied with hiccough and eructations. There is some pain at the lower part of the abdomen, and no alteration in the tumor. She passes a considerable quantity of water: takes nothing but beef-tea. Ordered,

Opii gr. ij. 4tis horis.

5. Her strength is now rapidly declining: she has scarcely any pulse, and her extremities are cold: tongue becoming brown; and abdomen large and tender: she has not had any sickness.

6. Appears to be gradually sinking; her abdomen becoming more tense. Continues the opium every four hours. There is some nausea, but no actual sickness: she has had no evacuations since her admission. She died about 10 o'clock P.M.

INSPECTIO CADAVERIS, March 7th, at 1 o'clock P.M.—Ulceration of the skin of the groin had nearly taken place; so that, in endeavouring to separate the skin, the sac was opened, and gave exit to feculent matter containing some drops of oil. The surface of the peritoneum was covered with plastic lymph, gluing the intestines to each other and to the walls, but easily separated. There had been no extravasation from the bowel into the peritoneal cavity. The sac appeared to have contained the least possible knuckle of ileum near its termination. This small portion of bowel seemed to have sloughed entirely away, leaving a gap in the intestine, the edges of which were adherent to the mouth of the ring, in such a manner as to shut out the bowel from the abdominal cavity. The adhesion, however, was so slight, that, in endeavouring to remove the parts, they separated, and the contents of the gut poured into the abdomen. The intestine above the stricture was distended: that below, empty.

CASE 19.

*Strangulated Femoral Hernia—Operation—Peritonitis—Death.*

THOMAS PHILLIPS, aged 81: admitted into Cornelius Ward, under Mr. Morgan, on March 2, 1841: by occupation a chimney-sweeper. Appears to have had a reducible hernia of small size on the right side for some years. He has never worn a truss. According to his account, it has now been strangulated for a week; and his bowels have not been opened for a longer period: he has had no sickness. He was placed for a short time in the warm-bath. At one o'clock in the afternoon, Mr. Morgan operated, and opened the sac, which contained some omentum in a state approaching to gangrene, and a knuckle of intestine, dark and rough, but not gangrenous. The



intestine was easily returned after dividing the stricture; and the omentum was left in the sac. Ordered an injection.

3 P.M. Quite comfortable: has had no motion. Ordered,

Calomel gr. i. Opium gr. i.—Repet. Enema.

*March 3.* Passed a good night, but has had no motion. In the course of the morning he had cal. gr. i. opium gr. i. About four o'clock P.M. had a scanty and unsatisfactory motion; and in the course of the evening his bowels were again relieved, the evacuations being offensive, and having the appearance of black mud. He is very weak: his tongue tolerably moist, and his pulse quick and rather sharp.

4. Bowels freely opened during the day. In the evening he was complaining of pain about the abdomen. Fomentations were ordered; and the ligatures were removed from the wound.

6. Decidedly better, and takes nourishment. He has had plentiful evacuations. There is very little action in the wound.

He gradually sank; and died on March 9th, at four o'clock A.M.

INSPECTIO CADAVERIS, performed by Mr. Cock and Mr. Hilton on March 14th, at the man's house. The slough of the omentum, which was exposed in the sac, appeared to be quite superficial: the parts beneath, and the sac itself, were healthy, and had preserved their vascularity, although there was no effusion of lymph, or attempt at reparation about the wound. The altered appearance of the surface of the omentum seemed rather the effect of exposure to air than a loss of vitality. The portion of small intestine which had been in the sac was lying immediately above the ring, having apparently never stirred after its return: indeed, it was bound down to the parietes and adjacent coils of intestines by recent inflammatory effusion. The two circles of constriction were still retained on the intestine; and the included portion, about two inches in length, was thickened, dark, and congested, and for the most part covered by inflammatory product. It did not appear, however, to be undergoing any morbid change: it was filled with healthy feculent matter, and would doubtless, under other favourable circumstances, have been able to resume its functions. The peritoneum lining the true pelvis and the left iliac fossa, the serous membrane of the intestines in those regions, and, to a lesser extent, the whole of the lower part of the abdomen, were covered with the plastic inflammatory effusion of peritonitis, which seemed to be the cause of death.

CASE 20.

*Incarcerated Scrotal Hernia—Reduced.*

SAMUEL TUCKER, aged 65: admitted into Cornelius Ward, under Mr. Cooper, on March 4, 1842, at nine o'clock in the evening. Has had a right scrotal hernia for forty years, and has occasionally worn a truss for the last ten years. The rupture has very frequently come down, even when his truss was on. The present descent occurred about four hours before admission, while walking without his truss. There was no tension about the tumor or ring, although a considerable quantity of intestine and omentum was in the sac. There was great tenderness about the part, and pain in the lower region of the abdomen; also some degree of apprehension and distress; and he has been sick. Ordered,

The warm-bath.—Cal. gr. iij. Opii gr. ij. st.—Enema ex Haust. Sennæ.—Ice to the tumor.

In the course of one or two hours the rupture was returned.

March 5. Bowels had not been opened. Ordered, Castor-oil.

6. Bowels freely opened: the hernia, however, immediately descends if he raises himself without closing the ring.

Left the hospital March 15, 1842, with a truss.

CASE 21.

*Strangulated Femoral Hernia—Operation—Ill-conditioned State of the Contents of the Sac—Death.*

MARY POWNEY, aged 36: admitted into Esther Ward, under Mr. Key, on March 11, 1842, at twelve o'clock at noon. A healthy, quiet, temperate woman, of dark complexion, and somewhat delicate: is married, and has a family. About twelve years ago she first became the subject of a rupture, which disappeared in the course of a year; and was not again noticed until a twelvemonth back, when it descended, and has remained down ever since. She has worn a truss, which, however, did not prevent the return of the rupture when she was about. It probably never did entirely go up; although she says it disappeared when in bed.

Yesterday morning at ten o'clock, while she was wringing some wet clothes, the hernia suddenly became much larger than it had ever been before. She made great efforts to return it; and then called in a surgeon, who employed the taxis unsuccessfully. She was soon faint and sick, and continued so all day and in the night. The hernia became painful and tender, from the repeated efforts which had been made to return it. Bowels had not been opened since yesterday.

On admission, there was an unusually large femoral hernia on the left side, which passed over Poupart's ligament, and reached nearly as high as the anterior superior spine of the ilium: it was hot, red, tender, and very tense. She had nausea, but no vomiting: her tongue white: pulse 110: abdomen painful and tender on pressure, especially at the scrobiculus cordis; but no tension. Bowels not been opened since the descent. Ordered,

A purgative injection.—Calomel gr. ij. Opii gr. iiss. st.—Ice to be applied.

No relief was obtained from the remedies: her symptoms increased, and the tumor became more tense and painful: she also had occasional hiccough. At half-past eight P.M. Mr. Key operated. The parts were in a highly-inflamed condition. The sac was opened, and contained a great deal of fluid of a fæcal odour. In front of the sac was a portion of omentum, connected with the rings, having exactly the appearance of, and at first thought to be, a small knuckle of intestine. It had evidently been long irreducible, owing to adhesions contracted at the fore-part of the ring, and was in a state approaching to gangrene. Under the omentum was a considerable portion of small intestine, two or three inches of which was black, but not gangrenous: it was smooth, and, to a certain extent, elastic. The stricture was exceedingly firm, and very difficult to liberate from the adhesion of the omentum. The omentum was cut off; and after the division of the stricture the intestine was with some difficulty returned, care being taken to leave the blackest part of it at the mouth of the ring, so that it could be seen when looking into the sac. The wound was left open, and warm-water dressing applied.

After the operation—countenance anxious and pallid; pulse weak. Ordered,

Calomel gr. ij. Opii gr. iiss. statim.

At half-past ten P.M. she was much collapsed, and her abdomen tender.

Julep. Ammonizæ ℥i. st.—Hot water to the feet; and to foment the abdomen.

About an hour afterwards she somewhat rallied; and vomited some dark-looking fluid, but having no fæcal odour.—To take wine and sago.

*March 12.* The injection, which had been given on her admission, has returned, with a small quantity of the contents of the large intestines. She is very weak and low, and has great thirst. No abdominal tension. Continued exceedingly depressed during the day. Takes brandy and arrow-root.

*March 13, 10 A.M.* In a state of complete collapse: vomited early this morning: abdomen swollen, and somewhat tense. Continues the brandy. She remained cold and pulseless; and died at two o'clock in the afternoon. No inspection allowed.

CASE 22.

*Strangulated Femoral Hernia — Operation — Sac not opened — Recovery.*

ELIZABETH SULLIVAN, aged 48: admitted into Martha Ward, under Mr. Key, on March 11, 1842: a widow of spare, delicate make, and accustomed to hard work. Eight years ago she acquired a femoral hernia on the right side, during a lingering labour with her last child: from that time up to the present period it remained about the size of a pigeon's egg, becoming larger when she exerted herself, but again subsiding: she has never worn a truss. Yesterday evening about seven o'clock, after inordinate exertion, the hernia descended much larger than usual, and was accompanied with great pain in the part and in the abdomen. She could not return it, and soon became faint and sick. A surgeon was called in, who used the taxis and gave medicines, but without success. Her symptoms becoming urgent, she was sent to the hospital; and was admitted at nine o'clock in the evening of the 11th. She then had nausea, but no vomiting, although she had been sick ever since the present descent: her pulse was 100; and her bowels not opened for three days: the abdomen tender on pressure, but no tension. The hernia was about the size of a hen's egg, somewhat tender, and probably contained omentum and intestine.

Warm-bath.—Taxis.—Ice to be applied for twelve hours.

Calomel gr. ij. Opii gr. iiss. statim.

*March 12.* No impression made on the hernia: the tumor and abdomen have become more tense and painful: there is nausea, but no vomiting: pulse about 100: constipation continues.

At two o'clock P.M. Mr. Key operated. The coverings were remarkably distinct. The sac was a little congested, and was not opened. The stricture was divided external to the sac, and the contents easily returned.—About an hour after the operation she was ordered,

Magn. Sulph. ʒij. Magn. Carb. gr. xx. ex Julep. Menth. statim; and to repeat it every three hours, till her bowels were freely opened.

12 o'clock P.M. Her bowels have been relieved, and her previous symptoms are diminishing.

*March 13.* No untoward symptom whatever. There was some slight abdominal tenderness, and she was therefore ordered fomentations.

14. Bowels have been opened three times.

19. Convalescing. A truss has been applied, as a small portion of omentum seemed inclined to descend into the sac. The wound has nearly healed.

She left the hospital on April 4, 1842, quite well.

#### CASE 23.

##### *Strangulated Oblique Inguinal Hernia—Operation—Sac opened—Recovery.*

HORATIO JOHNSON, aged 63: admitted into Cornelius Ward, under Mr. Key, on March 13, 1842, at five o'clock A.M.: a labourer, of temperate habits and general good health. Has been subject to a right inguinal hernia for twenty years, and has worn a truss for the last seven; which, however, does not seem to have acted efficiently, as a descent of bowel has frequently taken place. He appears to have had an irreducible portion of omentum for some years. He was in the hospital sixteen months ago, labouring under a similar complaint, when it was returned in the course of a day and a half. Last night, about nine o'clock, a partial descent took place from beneath his truss; and after being in bed an hour, he found a considerable increase in size, and was in great pain. On admission, there was a very large oblique inguinal hernia on the right side, somewhat tense, but not very tender, with some constriction at the neck. The abdomen was painful: the pulse full, and easily compressible: nausea, but no vomiting.

Warm-bath.—Taxis.—Ice to the tumor, which, from its size, was supported by a pillow.—Calomel gr. ij. Opii gr. i. st.

11 o'clock A.M.—Hernia much the same, although he feels easier: has vomited in the course of the morning. An injection which had been given him returned with some contents of the large intestines.

6 o'clock P.M.—Mr. Key operated; and being unable to return the contents after dividing the parts external to the neck of the sac, opened it by a small incision, and dilated the neck from within: the contents were then returned with some difficulty.—Had a grain of calomel and opium.

*March 14, 10 A.M.* During the night he lost a good deal of blood, apparently venous, from the wound, which has produced considerable collapse. His abdomen is somewhat tense and tender, and there is distress of countenance: has been sick for the last few hours,

and brought up the saline medicines that had been ordered him : bowels not opened : pulse weak, sharp, and 120.—Ordered,

Cal. gr. ij. Opii gr. iſs. st.

*March 14, 9 P.M.* Sickness has abated : pulse softer and slower. He is much better, although his bowels have not been opened.—Ordered to have some sulphate of magnesia in the course of two or three hours, if free from sickness.

15, 9 A.M. Has had the medicine three times, but it does not appear to have been retained on the stomach. He is very weak and low : has passed flatus per anum. In the middle of the day he had an asafoetida injection, which soon returned, without effect.

16. Has not had any evacuation, but passes merely flatus : no sickness : abdomen soft, and free from tenderness.

17. Bowels have not yet been opened. He suffers much from a cough which he is subject to. Takes nourishment, and retains it.—Ordered, castor-oil, with a few drops of laudanum.

18. Bowels freely opened in the course of the day : has not any symptom whatever, except his cough.

19. His coughing this morning caused the descent of some intestine into the sac, which Mr. Cock returned with very little difficulty.—Truss directed to be worn, in order to make pressure.

24. The truss produces great tenderness : it was therefore discontinued.

*April 6.* Wound nearly healed.

15. Left the hospital quite well, with a truss.

#### CASE 24.

##### *Incarcerated Omental Hernia.*

SARAH PARKER, aged 30 : admitted into Esther Ward, under Mr. Key, on March 14, 1842 : married, and has a baby seven weeks old. She is exceedingly low, having suffered great privations, and having been on parish allowance for the last few months. About one year ago she became the subject of a femoral hernia on the left side, which was reduced at St. Bartholomew's Hospital : since then she has kept it up by means of a truss. One week back a very small portion (probably omentum) descended, and remained down ; and the day before yesterday a further descent took place, to about the size of a pigeon's egg, being accompanied with pain and sickness, which continued till this morning, when the greater part of the contents of the sac was reduced by a surgeon. On admission, a very small body, feeling like a piece of omentum, still remains in the sac, and is very painful and tender. There is some general, although slight, abdominal tenderness,

but no tension: has had no sickness for the last few hours; and appears to be suffering from want of nourishment. Her bowels do not appear to have been efficiently opened for the last two weeks; but she has had occasional unhealthy slimy evacuations. Ordered, some castor-oil and opium, and moderate nourishment.

9 o'clock P.M. No sickness: bowels have not been opened. She seems comfortable, and appears to be much better for having had nourishment.

*March 15.* Has been slightly sick in the night; and has had a very small evacuation. In the afternoon her bowels were freely opened; and she then had no symptoms whatever.

25. There is still a slight tumor at the crural ring, which is tender, and continues to be painful.

She left the hospital soon afterwards.

#### CASE 25.

#### *Strangulated Femoral Hernia—Operation—Sac opened—Intestine gangrenous—Death.*

ANN GREEN, aged 52: admitted into Esther Ward, under Mr. Key, April 4, 1842: a delicate woman, is married, and had a child thirty years ago. Her previous history is extremely vague and doubtful; but she states, that for two years she has had a small tumor in the right groin. On March 31, after exertion, the tumor became larger; and she continued sick and in pain all that night and the next day, until the 2d of April, when a surgeon returned a considerable part of the tumor, which however did not seem to have produced any decided change in her symptoms.

On admission, in the evening of the 4th, she was low and feeble: there was a small tumor in the right groin, which was not very tender. The sickness had abated, and she had no particular symptoms. Ordered;

Ice to be applied; saline purgatives; and an injection in the morning.

*April 5, 9 o'clock, A.M.* Had retained the salts; but the injection could not be efficiently thrown up. The tumor is larger, and there is a blush on the skin: the abdomen is inclined to swell. Her symptoms are those indicating sloughing of a portion of strangulated intestine: there is extreme collapse: pulse imperceptible: hiccough, with nauseating eructations. Ordered, brandy and beef-tea.

1 o'clock. Mr. Key opened the sac, and exposed a small knuckle of intestine, hardly the entire calibre of the gut: the exterior of the sac, and the fluid contained in it, had a foetid smell. The fore-part

of the gut was gangrenous, and of an ashy colour; *but* the under-part, and that near the ring, did *not* appear to have lost its vitality so completely. The stricture was divided, and the gut left entire in the sac. The wound was merely covered with a bread poultice.—To have all possible support.

*April 5, 8 o'clock P.M.* Is slightly sick, and is still collapsed: has frequent eructations of small quantities of bilious matter.

*6, 9 o'clock A.M.* No change. The abdomen is swollen, but not very tender: the gut, which is exposed in the wound, is in much the same state. She continued thus all day; and at 8 o'clock P.M. Mr. Key opened the gut, but no feculent matter escaped.

7. Some fluid of a fecal character has passed from the intestine during the night: it was small in quantity, and gave no relief to her symptoms: she is delirious, and has a tense abdomen. In the course of the morning there was a considerable discharge of healthy feculent matter from the wound, and she had vomiting of a stercoraceous character.

She died on the 8th of April, at one o'clock in the morning.

INSPECTIO CADAVERIS.—There was some vascular peritonitis, but no effusion. The strangulated portion of intestine was at the lower part of the ileum; and about two-thirds of the calibre of the gut was included in the stricture. A soft adhesion had taken place between the gut and the neck of the sac. The intestine was moderately dilated above the stricture, but contracted and empty below it. The gangrenous portion was about the size of a shilling, and formed only a part of that surface included within the stricture. No opportunity was afforded of examining the separate viscera.

CASE 26.

*Incarcerated Femoral Hernia—Reduced.*

CATHERINE LANAGAN, aged 48: admitted into Esther Ward, under Mr. Morgan, April 7, 1842: has been a widow six years, and has a family. She appears to have had a femoral hernia for two years, which has occasionally come down. It descended yesterday, and could not be returned; and to-day it has become hard and tender. An injection was given her, and the hernia was soon afterwards reduced. Her bowels have since been plentifully opened. She left the hospital, well, on the 16th of April 1842.



## CASE 27.

*Strangulated Femoral Hernia—Operation—Sac not opened—Recovery.*

CORAH KERSTRING, aged 35: admitted into Esther Ward, under Mr. Key, April 24, 1842, at 2 o'clock in the afternoon: a single woman, delicate, and in a bad state of health, owing to an attack of peritonitis, from which she is just recovering. Appears to have had a right femoral hernia for a number of years, which has descended at irregular intervals. She has worn a truss for the last four years.

On the evening of the 22d inst. it descended, and could not be returned: she has been sick and constipated ever since. The surgeon stated, that it was reduced yesterday morning, and a truss applied; that last night it again came down; and that the vomiting and other symptoms of strangulation never ceased till the time of her admission. There is now much distress: she complains of great pain in the abdomen, and tenderness on pressure, but no tension. The small intestines can be seen and felt distended through the parietes, which are soft and flabby. There is a small hernial tumor in the right femoral region, not very tender, and seems to contain intestine. She had not passed any water since yesterday, and a moderate quantity was now drawn off.

Warm-bath.—Ice to the tumor.—Foment the abdomen.

Cal. gr. ij. Opii gr. iſs. st., which entirely allayed the vomiting.

5 o'clock P.M. Mr. Key operated, and returned the contents of the sac without opening it.

Half-past 10 o'clock P.M. All symptoms have subsided, but she has had no motion. Ordered,

Salts, Magnesia, and Peppermint-water.

24. No motion. The salts were repeated; and in the afternoon she had an enema, which was followed by a not very satisfactory motion. In the evening she had cal. gr. ij. opii gr. i.

26. She is free from any untoward symptoms; but her bowels have not been opened. Ordered,

Ext. Hyosc. gr. iij. Pil. Hydrarg. gr. iij. o. n.

M M. c̄ M S. o. n.

27. Bowels have been moderately and satisfactorily opened during the night. She still complains of pain across the abdomen.

28. Bowels well opened: she feels much better.

Left the hospital quite well, and wearing a truss, on May 18.

CASE 28.

*Strangulated Femoral Hernia — Operation — Sac not opened —  
Recovery.*

MARY ANN FALLON, aged 9: admitted into Esther Ward, under Mr. Key, April 26, 1842: an intelligent, precocious child, excessively delicate and thin. Seems to have been in a deranged state of health for some time. It appears from the statement, that for several years she has had a small tumor in the right groin; and that six days ago it became larger; since which her bowels have remained obstinately constipated, and she has had continual vomiting, and has brought up a large lumbricus worm. On admission, there was clearly a femoral hernia; but after an examination of the case, it appeared doubtful whether it contained intestine or omentum, or whether the symptoms were to be ascribed to strangulated bowel, or some other cause. The tumor was not tense: there was considerable tenderness on pressure, and pain about the scrobiculus cordis: the convolutions of the distended small intestines could be distinctly seen and felt through the abdominal parietes: great distress of countenance, and very low. The operation was postponed for a few hours, to ascertain the nature of the symptoms. She had no further sickness; but refused to swallow any thing. For about six hours after admission the pain and distress increased; and there was an additional fulness of the abdomen, and tension of the sac. Mr. Key then operated, by laying bare the sac with a single vertical incision: it was very superficial, and its exterior presented no indication of gangrene within. The stricture was then divided externally to the sac, and the contents returned: there was some difficulty in insinuating the director and hernia-knife under Poupart's ligament; and the neck of the sac was close to the femoral artery, and overlapped the vein. She was ordered a small injection of house-medicine, with ʒss. of tinct. asafoetid.

*April 27.* Her bowels were freely opened an hour and a half after the injection. All her symptoms have subsided, and the abdomen is soft and free from pain. She has had some broth, &c.

29. Going on well.

Left the hospital quite well, and with a truss, on May 16, 1842.

CASE 29.

*Incarcerated Scrotal Hernia—Reduced.*

JOSEPH JOHNSON, aged 40: admitted into Cornelius Ward, under Mr. Morgan, May 23, 1842: a negro. He appears to have had a left inguinal hernia for some years, with a portion of irreducible omentum in the sac, which was large, and into which intestine occa-

sionally descended. Some hours previous to admission a considerable quantity of intestine descended, which he was unable to return. It was however reduced with great ease after he had been in the warm-bath; and he left the hospital in a few days.

## CASE 30.

*Incarcerated Omental Femoral Hernia—Partially returned.*

SOPHIA BROWNE, aged 32, admitted into Esther Ward, under Mr. Cooper, June 20, 1842: a single woman, of light and healthy aspect. Four years ago first observed a tumor in the right groin, which was generally about the size of an egg, and was easily returned; but about the end of September 1839, in consequence of its becoming strangulated, she was admitted into this ward, under Mr. Key, when it was reduced in the warm-bath. She went out about a fortnight afterwards, with a truss, which she has worn ever since, and has never had any descent. Last Saturday, June 18, she was very unwell; and whilst retching, the rupture descended, in spite of the truss, and could not be returned. She has since suffered from sickness and general distress, with pain and constriction about the tumor. Her bowels are generally costive: they were opened three or four times on Saturday, and once yesterday. On admission, there is a femoral hernia on the right side, apparently omental, about the size of a bantam's egg, which, together with the ring and adjacent parts, are tense and painful: this is accompanied by a dragging pain about the umbilicus and right iliac region. Her countenance is anxious: tongue pale, with slight fur: pulse 102, and irritable. Taxis was ineffectually employed. Ordered,

Ice to the tumor.—Cal. gr. iv. Opii gr. iſs. st.; and an Enema.

In the evening, there was no increase of symptoms, and she was altogether easier. The injection had returned with some scybalous matter from the large intestines.

June 21, half-past 8 o'clock A.M. Feels better, although her symptoms are much the same: has not passed any urine. To leave off the cold, and to foment the abdomen.

Detrahat. Urina.—Ol. Ricini ʒiſs. Tinct. Opii m xv. ex Aq. Ment. Pip. st.

She rejected a portion of the oil; and in the middle of the day she had an enema ex haust. sennæ: this relieved her bowels thoroughly in the course of the afternoon.

22. Tumor continues painful, and there is moderate tenderness over the abdomen. Bowels opened.

June 23. Tumor not so tender. Health pretty good.

29. The tumor is somewhat decreased in size, and all tenderness has subsided: it feels like a hard, solid lump of omentum. She has had retention of urine ever since the descent of the hernia; for which she has been treated with blisters to the sacrum, stimulating applications to the region of the bladder, and the internal exhibition of tinct. ferri sesquichlor.; under which latter she gained the use of her bladder.

July 7. Tumor remains much the same. Iodine ointment to be rubbed in.

9. Last night a considerable portion of the tumor disappeared, leaving only a small portion behind, which appears to have been a long time resident in the sac.

She left the hospital quite well, and with a truss, on July 15.

#### CASE 31.

##### *Strangulated Femoral Hernia—Operation—Sac opened—Recovery.*

SOPHIA D. PEARCE, aged 43: admitted into Esther Ward, under Mr. Cooper, June 22, 1842: a widow, with two children. Has been unwell for the last five weeks, owing to an attack of influenza. About two years ago she first observed a tumor in the right groin, which did not cause any particular inconvenience, and varied in size, although it never entirely disappeared. It has rather increased lately, but for the last two months has remained about its present size: she has never worn a truss. Yesterday, about 6 o'clock P.M., without any particular alteration in the tumor, she began to have sickness, with pain about the umbilicus, and general distress, which have continued ever since. The taxis was unsuccessfully used, and she was brought to the hospital about half-past 8 o'clock A.M. There was then a tumor in the right groin, below Poupart's ligament, about the size of a large walnut, tense, and very tender: countenance very much distressed: pulse quick and irritable: tongue moist, but furred: much pain about the umbilicus: bowels not opened since 3 o'clock P.M. yesterday: moderate tenderness over abdomen, and violent retchings.

Ice ordered to the tumor; and Calomel gr. i. Opii gr. i. statim.

Enema ex Haust. Sennæ.

The injection soon returned with a quantity of scybalous matter, evidently from the large intestines.

1 o'clock P.M. Symptoms continuing, Mr. Cooper operated, and opened the sac: some omentum, and a small knuckle of healthy recently-descended intestine, were exposed: after the division of the stricture, the intestine was immediately returned; but the omentum, being permanently fixed, was left in the sac. Symptoms ceased almost directly after the operation.

June 22, 4 o'clock P. M.—Bowels not opened, yet going on favourably.

23. Bowels open once in the night: no sickness or abdominal pain. Ordered,

Enema ex Haust. Sennæ in the morning; which, in the course of the day, relieved her bowels twice.—Has a troublesome cough.

24. Bowels open, but scantily. She has a good deal of fever and thirst; slight nausea; quick and rather sharp pulse; furred tongue; flushed face. Ordered,

Julep. Menth. Vitriol. ter die.

4 o'clock P. M.—Sickness and thirst continue: has had a slight watery motion. Ordered,

Inf. Ros. C. pro potu.

25. Sickness has now subsided: she is much better, and the wound is looking healthy.

From this date she gradually convalesced; and on the 4th of August she left the hospital quite well, with a truss.

#### CASE 32.

#### *Strangulated Congenital Scrotal Hernia—Operation—Sac opened—Recovery.*

HENRY WARREY, aged 24: admitted into Cornelius Ward, under Mr. Cooper, on June 22, 1842: a single man, by occupation a labourer; stout, healthy, and of light aspect: has lately been employed at a public-house, and has drank pretty freely. He has been the subject of hernia from childhood: at first on both sides; but that on the left has not descended for many years. He has formerly worn a double truss occasionally; but left it off entirely nine years ago; since which the rupture on the right side used to come down during the day, and returned when he lay down: it was small in size, and gave him no inconvenience. Yesterday afternoon, while walking, he was seized with sickness and pain in the abdomen and scrobiculus cordis: he found the rupture much larger than usual, and endeavoured to return it. He had medical advice; was bled to a large amount; and the taxis was vigorously but fruitlessly employed. The sickness and retching continued, so that he rejected every thing that he took.

On admission, about 7 o'clock A. M., there is a large scrotal hernia on the right side, somewhat elastic, tender, and very painful, especially at the neck: the testicle projects, and is distinct and separate at the bottom of the tumor, with its long axis lying transversely. His countenance is anxious: tongue furred and moist: pulse irritable: complains of a dragging pain across the umbilicus and towards the right

side: has constant retching, with great desire to relieve his bowels. Urine not passed since yesterday afternoon: bowels not opened since the morning of the 21st. His urine was drawn off; he was put into the warm-bath; taxis used; and ice applied to the tumor.

Cal. gr. iij. Opii gr. ij. st.—Enema ex Haust. Sennæ.

He passed a solid-figured motion, evidently from the large intestines, shortly afterwards.

June 22, 1 o'clock P.M.—Symptoms much the same. Mr. Cooper operated, and opened the tunica vaginalis: it contained a quantity of clear fluid, resembling that of hydrocele. The testicle was exposed to view, and above it was a portion of healthy small intestine, which was returned, after division of the stricture. A considerable quantity of serum escaped from the abdominal cavity.

8 o'clock P.M. Countenance improved; all symptoms have ceased; and he is quite easy: bowels not opened.

23. Passed a good night: is free from symptoms: has voided his urine, but has had no motion. Ordered,

Enema ex Haust. Sennæ;

which produced a small evacuation from the large intestines.

1 o'clock P.M. He had ol. ricini ʒvi.; and in the course of the afternoon his bowels were opened three or four times.

24. Bowels freely opened in the night: he feels quite comfortable, and is improving.

The wound healed up, without any bad symptom; and he left the hospital quite well, wearing a truss, on July 25th, 1842.

CASE 33.

*Incarcerated Femoral Hernia—Partially reduced.*

ANN SIMPSON, aged 64: admitted into Esther Ward, under Mr. Cooper, on July 6, 1842: a healthy-looking widow, and has had three children, but none for the last thirty years. Her health has been indifferent for some time, owing to bilious attacks. Sixteen years ago a femoral hernia suddenly descended on both sides, during exertion; since which she has always worn a double truss. The rupture on the left side never again appeared; but that on the right would occasionally descend, in spite of the truss: however, she could always return it, or, at any rate, the greater portion, until two weeks ago, when a larger descent took place, which has not been reduced. The bowels were opened naturally yesterday morning, and she has no symptoms. The tumor does not occupy the usual situation, but has descended from the ring over the inner and fore part of the thigh,

where it forms a large swelling, which is somewhat tense, and not very tender, except just at the ring.

Warm-bath.—Taxis.—Ice to the tumor.

Her bowels were freely opened shortly after admission. No particular symptoms occurred; the parts have remained in much the same state; and she has had no constipation.

*July 31.* The tumor was softer, and quite free from tenderness; and, by a moderate use of the taxis, Mr. Cock succeeded in returning the greater part of the contents.

In the course of a day or two afterwards, the whole of the omentum was said to have passed up into the abdomen; but it subsequently descended to a considerable extent, and, after remaining so for a few days, it again receded. She left the hospital on August 13th, with a truss. A small portion of omentum appeared then to be still remaining in the sac.

#### CASE 34.

##### *Incarcerated Omental Hernia in Inguinal Canal, irreducible — Testicles had not descended.*

WILLIAM M——, aged 29: admitted into Philip Ward, under Mr. Cooper, on July 8, 1842: a tall, robust man, generally enjoying good health. Eleven years ago he entered the Dragoons; and while riding, his knee became entangled, and his left leg and thigh were drawn violently back, when he felt something give way at the groin: he became immediately sick and faint; and on examination, there was found a large inguinal protrusion at the situation of the internal ring and inguinal canal, which was returned, after means had been used for forty-eight hours. Six years ago it became irreducible, and he was then admitted into this hospital, under Mr. Cooper; when, after bleeding and the warm-bath, it was returned. About two years after this it again descended, giving him however more pain and sickness: he was in St. George's Hospital, and had it there returned. The hernia appears never to have passed through the external ring. He has never worn a truss. Four days back his bowels were constipated; and while straining at stool, the rupture descended, which gradually attained the size of his fist: he was unable to return it. For three days he has been in great pain, with constant sickness, until yesterday morning, when his bowels were opened by some medicine: the tumor then had, by means of fomentations, subsided to its present size. On admission, the tumor is about the size of a hen's egg, filling up and distending the inguinal canal, and is particularly tender. There are no symptoms.

Ice to be applied.—Cal. gr. iij. Ext. Col. C. gr. v. Ant. Pot. Tart. gr. fs. statim.—M. M. c̄ M. S. until bowels are freely opened.

His testes have never descended; and there is not the slightest appearance of scrotum: the penis is well developed, and he has all the other signs of virility. He married when he was twenty; had two children by his first wife; and he has now been married two years to a second wife.

*July 9.* Bowels freely opened: otherwise much the same.

His bowels were kept regularly opened by occasional doses of M. M. c̄ M. S.; and ice was applied to the tumor. This plan of treatment was continued up to July 31: the hernia was then somewhat smaller than on admission, but still irreducible. It gives him neither pain, nor any particular inconvenience. Wishing to leave the hospital, he was presented.\*

CASE 35.

*Incarcerated Scrotal Hernia—Reduced.*

JOSEPH J. DEBER, aged 27: admitted into Lazarus Ward, under Mr. Cooper, on July 10, 1842: is a single man, a groom, and generally enjoying good health. About sixteen or seventeen years ago he first noticed a hernia on the right side, which he has never been able entirely to return. It has descended to its present size three times before, but cold and the recumbent posture have easily effected its reduction. He has never worn a truss. It descended early yesterday morning, while cleaning a horse: he returned it himself; but it again descended at ten o'clock A.M., and remained down all day. He had violent retching, and was in great pain. In the evening he was bled, and had a tobacco enema, soon after which the surgeon returned the rupture; but in about two hours it again came down, as he was retching, and could not be returned.

On admission, about ten o'clock A.M., there was a scrotal hernia on the right side, about the size of two fists: it was divided into a smaller upper and a larger lower portion by an hour-glass contraction, a little below the external ring: it was exceedingly tender and painful. He had constant vomiting, dragging pains about the umbilicus, great anxiety and excitement. Bowels not been opened since yesterday morning. Ordered,

Cal. gr. v. Opī gr. ij. st.

He was put into the warm-bath; and after the application of the taxis for a short time, it was reduced. His bowels were opened in the course of the day; and he went out on July 14, 1842.

\* I saw this man in February 1843. The inguinal tumor had disappeared, but a small portion of omentum could still be felt protruding through the internal ring. He suffered neither pain nor inconvenience.



## CASE 36.

*Strangulated Scrotal Hernia—Death.*

JAMES NEALE, aged 34: admitted into Cornelius Ward, under Mr. Morgan, on July 24, 1842. It appears, from the history of the medical attendant, that on the 20th inst. the man was labouring under constipation, with griping pains: there was neither tenderness of the abdomen nor vomiting. He was ordered five grains of calomel, and salts and senna.

July 21. Bowels not relieved: otherwise much the same.

22. Has vomited stercoraceous matter: bowels not open. There was nothing like a hernia to be detected on examination; and the man denied ever having been the subject of rupture. The medicines were repeated, enemata administered, and the abdomen fomented. The second enema brought away a large quantity of hard scybæ; and his bowels were said to have been freely acted on afterwards.

23. Complained of no pain whatever: vomiting continued, and was stercoraceous: pulse 90: no external appearance of hernia. Ordered, a grain of calomel, with salts and senna, every four hours.

24. The patient's brother stated, that about ten o'clock this morning, on removing the fomentation flannel, he discovered a swelling in the left groin, which was not there an hour before. It was found to be a scrotal hernia, very tense, and had no impulse on coughing. The skin over the tumor was dark and inflamed: abdomen tympanitic, but not tender on pressure: pulse 90: great anxiety of countenance. The taxis was employed for fifteen minutes, without effect; and he was then brought to the hospital. On admission, he was in a state of collapse, with great nervous irritability and excitement. The hernial tumor was dark and discoloured, full, and rather tense; and, on being pressed, appeared to contain fluid and air. He was placed in the warm-bath; after which he appeared to rally somewhat. As the history of the recent descent of the hernia was persisted in by the surgeon who attended him, the operation was delayed; and the man was ordered cal. gr. ij. opii gr. ij. st.; which was to be repeated in the night.

He got worse, and gradually sank. Died about about half-past 9 A.M. on July 25th.

INSPECTIO CADaveris, July 25th. — Abdomen tympanitic: scrotal tumor discoloured. On opening the abdomen, the small intestines were found greatly distended with fluid and air; the former similar in character to that which he had vomited: their peritoneal coat was excessively injected, and in a state of acute inflammation: it was easily lacerable. There was an oblique inguinal hernia on the left

side, consisting of omentum and a portion of ileum, about eighteen inches from the cæcum. The ileum below the stricture, and the whole of the large intestines, were contracted and empty, and free from inflammation. There was no serous or plastic effusion into the peritoneal cavity. On drawing aside the ileum, as it entered the abdominal ring, a small fissure in the gut was brought into view from the abdominal aspect, exactly at the line of constriction: a small quantity of the contents escaped. This perforation was evidently caused by traction at the time of examination, as there was not the slightest evidence of fæcal extravasation having previously taken place into the abdominal cavity. On cutting into the scrotum, over the tumor, the cellular tissue and coverings of the sac were black, and in a state approaching to gangrene. The sac itself was in a complete state of gangrene, being filled with dark offensive fæcal fluid: its contents were, a considerable portion of gangrenous omentum, and, at its upper part, a knuckle of strangulated intestine in a sphacelated condition, with a small perforation on one side, through which the contents had been evacuated into the sac. In another spot it was nearly perforated, the peritoneum alone remaining, and on the point of giving way.

There can be no doubt, that, in this case, strangulated hernia had existed from the commencement of the symptoms on the 20th; and, that the supposed descent of the hernia on the 24th was, in fact, the rupture of the intestine from gangrene, and the consequent effusion of the contents into the sac.

#### CASE 37.

##### *Incarcerated Scrotal Hernia—Reduced.*

JAMES HARRISON, aged 77: admitted into Cornelius Ward, under Mr. Cooper, on July 31, 1842: a feeble old man, tolerably healthy: has had a large left scrotal hernia for thirty years; and for the last fifteen has worn a truss, which, however, did not prevent the rupture occasionally descending. Last Friday, July 29, he took off his truss in consequence of its producing a little pain and irritation, when the hernia descended, and has been irreducible since. Long and frequent attempts were unsuccessfully employed to return it; and he does not appear to have had any severe symptoms. On admission, the hernia was of a large size, and produced some dragging pains about the umbilicus. He has had slight vomiting to-day, and his bowels have not been opened since yesterday morning. Warm-bath ordered; and shortly afterwards Mr. Cock returned the whole of the intestine without difficulty: a portion of hard knotty omentum remained in the sac, which has probably been long irreducible.

He left the hospital on August 4, quite well.

## CASE 38.

*Strangulated Scrotal Hernia—Reduced—Peritonitis—Death.*

JAMES HOOK, aged 58: admitted into Cornelius Ward, under Mr. Key, on August 4, 1842. Has had a large reducible left scrotal hernia for twenty years, and has worn a truss, which, however, has not prevented the constant descent of the rupture. He was in Guy's Hospital six years ago, and again one year and a half ago, for the same complaint: on both occasions it was reduced. It descended this morning, when in bed, during a fit of coughing, and he could not reduce it. On admission, there was an enormous elongated scrotal tumor, rather tense, but not tender, extending into the left inguinal region: the external ring seemed to be large. He has been sick, and was suffering considerable pain and general distress. The taxis proving ineffectual, he was put into a warm-bath; after which he was ordered an enema, and to apply ice to the tumor.

Opii gr. ij. Calomel gr. iij. statim.

The ice was continued till 7 o'clock P.M., when Mr. Cock reduced the whole of the contents of the sac without difficulty.

In the course of the night he complained of great pain on the left side of the abdomen, accompanied by swelling and great collapse. Was considered to be labouring under peritonitis: leeches were applied, and calomel and opium given; but he never rallied, and died the next day, August 5th, at 6 P.M.

It appeared, from the history of his wife, that he had been labouring under some abdominal complaint for the last fortnight.

INSPECTIO CADAVERIS.—Abdomen very tense, caused, in a great measure, by air in the peritoneum, the result of cadaveric decomposition. General peritonitis, with considerable bloody serous effusion into the cavity. About three feet of small intestines were nearly black; but as there was no mark of stricture around them, it was impossible to say whether they were the portion which had been in the sac at the time of his admission: another portion of small intestine, not similarly discoloured, occupied the hernial sac at the time of inspection. The intestines, both large and small, contained a great quantity of grumous blood, and their lining membrane was much congested, and soft.

## CASE 39.

*Strangulated Femoral Hernia—Reduced.*

ANN DOYLE, aged 42: admitted into Esther Ward, under Mr. Morgan, on August 15, 1842: a sickly emaciated person. Has had a femoral hernia on the left side for ten years, which has several times

been down, but was returned without difficulty. She has worn a truss, but laid it aside a month ago; since which there has been no descent, until the evening before admission, when the hernia came down, after a long walk, while carrying a child. She has suffered much pain in the part and in the abdomen, and has vomited during the night: she continued in much the same state till admission. Her bowels, which are habitually constipated, had not been opened since the 12th. Mr. Morgan returned a considerable part of the contents, probably intestine, leaving a small portion in the sac, apparently omentum.—Ice was applied. In the evening, her bowels had not been opened, although an enema had brought away a considerable quantity of scybalæ from the large intestines: there was considerable abdominal pain and tenderness on the left side. Ordered,

Opium gr. ss. Calomel gr. iij.

She was sick after taking the pills, and brought up some fluid, which had a stercoraceous appearance, but no fecal odour. Another injection was given, which returned with a collection of scybalæ.

*August 16.* Much less pain and tenderness: has nausea, but no vomiting. In the course of the morning she had a natural satisfactory motion, and another in the afternoon: in the evening she was again sick, and complained of pain. Ordered,

Calomel gr. i. Opium gr. i. statim.

17. Much better: bowels opened again during the night.

19. Tumor the same: she is suffering a good deal from abdominal pain and tenderness: bowels confined, and occasional vomiting of bilious matter. Ordered,

Calomel gr. ii. Opium gr. i. 6tis horis.

21. Better: has had some castor-oil to open the bowels.

23. The calomel and opium were discontinued yesterday, as all abdominal symptoms had subsided. Last night the remaining part of the contents of the sac went up, and the tumor entirely vanished. Truss directed to be applied; and she left the hospital soon afterwards.

CASE 40.

*Incarcerated Femoral Hernia—Partially reduced.*

MARY PROTHOROE, aged 43: admitted into Esther Ward, under Mr. Key, on August 26, 1842: single: has generally good health. Since Christmas last she has been the subject of a very small left femoral hernia, which has occasionally descended, but again returned: this more especially occurred when she coughed. On the previous evening she was attacked with vomiting, when she found the tumor

down and immovable: she took some medicines, which were vomited; and the pain and sickness continued until her admission early this morning: she was then sick, and had great general, abdominal, colicky pains, but no particular tenderness. There was a very small hernial protrusion, moderately tender, and apparently containing a knuckle of intestine. She had great anxiety and distress. Mr. Cock succeeded in considerably reducing the size of the tumor, and rendering it somewhat flaccid. Ordered,

Calomel gr. i. Opii gr. i. statim.—Ice to the tumor.

She vomited soon after this: the tumor became again distended, and could not be reduced to the previous size.—The ice continued.

In the evening, all her symptoms had in a great measure abated, and she has had some sleep. Her bowels, which are habitually confined, have not been opened for two days: the tumor is now very small and contracted. Ordered, salts-and-senna injection; which, after a time, returned, and was followed by a pretty copious evacuation, some of which appeared to be from the small intestines.

*Aug. 27.* Free from all symptoms: had another injection in the afternoon, and continues the application of ice: the tumor is small and contracted. In the course of the evening she had another plentiful evacuation.

28. A good deal of intestinal pain and disturbance. Ordered,

Opii gr. i. Cal. gr. iij. statim; and some Castor-oil afterwards.

30. A very small portion of omentum still remains in the sac: she is wearing a cup-truss, and left the hospital soon afterwards.

#### CASE 41.

*Strangulated Scrotal Hernia—Reduced—Underwent an Operation five months previously.*

HORATIO JOHNSON, aged 63: admitted into Cornelius Ward, under Mr. Key, on August 27, 1842, about 4 o'clock A.M. He was in the hospital five months back, suffering under the same complaint: he was operated upon, and left the hospital quite well. (See Case 23.) It appears, that since the operation his truss has not been quite effectual in preventing the occasional descent of a small portion of intestine into the mouth of the sac. About one hour ago, his truss having been laid aside, the hernia descended during a violent fit of coughing: he immediately had great pain in the abdomen, with vomiting.

Warm-bath.—Taxis.—Calomel gr. iij. Opii gr. i. statim.—Ice applied to the part.

About 9 A.M. Vomiting has ceased, and there is some anxiety and

distress: tumor rather large and tense, and moderately tender: the neck is very tight and constricted.—To repeat the calomel and opium; to continue the ice; and to have an injection: this returned without result.

About 2 P.M. Mr. Cock returned the whole of the contents of the sac, without much difficulty: the opening of the ring presented an oblong slit, with hard unyielding edges.—Left the hospital quite well two or three days afterwards.

CASE 42.

*Strangulated Femoral Hernia—Operation—Sac opened—Some Omentum removed—Attack of Mania—Recovery.*

GEORGE SIMPSON, aged 56: admitted into Cornelius Ward, under Mr. Cooper, on September 13, 1842, at 5 o'clock P.M.: a healthy-looking man, of short stature and light aspect, a fellowship-porter; temperate. Has had a swelling in the right groin for eight years, which never produced any inconvenience, and was probably an irreducible portion of omentum. About a week ago, without much change in the size of the tumor, constipation, with vomiting, came on, and has continued ever since. On admission, there was a small femoral hernia on the right side: he had dragging pains about the umbilicus, vomiting, and constipation: no pain in the tumor or in the abdomen: countenance not indicative of distress; but he appeared to be half-witted, and his manners were not quite those of a sane person. Ordered,

An Enema of Castor-oil; and Calomel gr. v. statim.

10 o'clock P.M. Symptoms continuing, especially the vomiting, Mr. Cooper operated, and opened the sac, which contained a very small knuckle of intestine at the neck, and some omentum. On separating these with the finger-nail, the intestine slipped back into the abdominal cavity: the greater portion of omentum, which was in a state approaching to gangrene, was removed.

Sept. 14. Going on well: bowels open: very little pain; skin moist: countenance good.

15. Slight fever: pulse rapid: face flushed: skin bathed in perspiration: bowels opened by the aid of medicines. Ordered,

Haut. Effer. 6tis horis.

16. Much the same: edges of wound inflamed, with an unhealthy discharge.

The fever soon subsided, the wound became healthy, and the remaining portion of omentum sloughed away. He became subject to hallucinations, at times assuming the form of acute mania. He

continued maniacal for several days; when the attack subsided, and he slowly recovered from a state of extreme exhaustion.

*Nov. 8.* The wound had quite healed, and he left the hospital, wearing a truss.

#### CASE 43.

##### *Strangulated Scrotal Hernia—Reduced.*

THOMAS SMITH, aged 36: admitted into Cornelius Ward, under Mr. Key, on September 20, 1842: a labourer, of regular habits and good health. Has been the subject of a reducible oblique inguinal hernia for ten years: has never worn a truss. About eighteen months ago it became incarcerated, and was returned in the bath. Yesterday evening, about seven o'clock P.M., he had an attack of diarrhoea and vomiting; and, whilst straining, the hernia descended, which was followed by sickness and pain in the abdomen. On admission, at twelve o'clock at noon, there was a small scrotal hernia: he had slight nausea; and his bowels had not been opened since the descent: skin hot and dry: great tenderness over the abdomen: pulse quick: tongue furred. Warm-bath and taxis employed. He had a slight hiccough, and was sick in the bath. Ice was then applied for two hours, when Mr. Key returned the intestine without much difficulty. The man had a copious healthy motion soon afterwards.

He left the hospital quite well on September 22, 1842.

#### CASE 44.

##### *Strangulated Femoral Hernia—Reduced.*

ELIZABETH MASSINGER, aged 36: admitted into Esther Ward, under Mr. Cooper, on October 20, 1842: married. Has been the subject of a femoral hernia for some time; but had never experienced any pain or inconvenience until the 15th inst., when she was seized with violent pain in the bowels, vomiting, and hiccough. She was seen by a surgeon, who ordered her an enema, which however produced no effect. Her symptoms continued up to the day of admission. The tumor then was not very tense: some slight pain over the abdomen: countenance anxious: pulse quick and wiry: tongue furred and brown: bowels not opened since the 15th. Ordered,

Enema ex Haust. Sennæ st.; and Ice to the tumor.

About half-an-hour afterwards she had a copious motion; and in the course of two hours Mr. Cooper returned the rupture.

She left the hospital, quite well, shortly afterwards.

CASE 45.

*Incarcerated Scrotal Hernia—Reduced.*

RICHARD LLOYD, aged 30: admitted into Cornelius Ward, under Mr. Key, on October 31, 1842: married; temperate; by occupation a porter, and accustomed to very heavy work. For the last year he has had some occasional pain in making water, which was chiefly referred to the neighbourhood of the left external ring, and arose probably from the effect of straining, as he appears to have some stricture of the urethra. Never was aware of having had the slightest hernial protrusion, or tendency to it, until a few hours previous to his admission; when, while lifting a chest, he felt a sudden pain in the left inguinal region, and found a small swelling there. Before he got home, a large hernia of intestine, about the size of a very large fist, had descended into the scrotum, which was accompanied with great pain and sickness. His bowels had not been opened since the previous day.

On admission, freezing mixture was applied for a short time, and he was put into the warm-bath, where the reduction was accomplished. He afterwards had a purgative.

Nov. 1. Bowels have been freely opened. The left ring is very large, and the right one will also admit the end of the finger.

Left the hospital November 9th, quite well, with a double truss.

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ANOMALOUS CASES.

CASE 1.

*Hydrocele of the Round Ligament.*

ELLIS H —, aged 26: admitted into Esther Ward, under Mr. Key, on February 18, 1842: a delicate young woman, married three years, and has two children. She states, that some time before her marriage she had a fulness in the groin, which disappeared. She perceived a tumor in the same place about one month ago, and took little notice of it, as it occasioned scarcely any pain. The tumor continuing to increase, especially after exertion, she consulted a surgeon, who said it was a hernia, and directed her to apply to the hospital. On examination, there is a tumor situated in the right inguinal region, which seems to proceed from the external ring, and passes into the labium: it may be pushed back into the canal, but cannot be reduced; neither does it appear to have any direct communication with the abdomen. She says that it varies in size, and is somewhat painful when she exerts herself; but in a great measure subsides when in the recumbent posture. The tumor is somewhat tender, and feels like a cyst connected with the round ligament,



containing fluid. There are no symptoms whatever of hernia. Mr. Key believed it to be hydrocele of the round ligament, and directed tinct. iodinii to be applied.

She left the hospital a few days afterwards, the cyst then being greatly reduced in size.

#### CASE 2.

#### *Fungoid Disease of the Testicle and Cord, resembling an Omental Hernia—Death.*

WILLIAM STRETTON, aged 26: admitted into Cornelius Ward, under Mr. Morgan, on June 9, 1842: a corn-chandler; muscular; of pallid aspect; and has always enjoyed good health. His statement was as follows:—Has been since his birth the subject of rupture on the left side, which was always reducible. Remembers, when about eight or nine years old, occasionally pushing up the testicle on that side, through the ring, into the abdomen. He did not wear a truss till he was seventeen or eighteen, and then only for a few months: he however again resumed it about seven or eight weeks ago, but discontinued its use a few days previous to his admission. On the 7th inst., about half-past four o'clock P.M., whilst pumping violently, the hernia descended, and could not be returned. He had no symptoms; and the taxis having been used in vain, he came to the hospital outside an omnibus; and during the ride he experienced considerable pain from the sitting posture, being compelled to make pressure on the tumor.

On admission, there was a tumor on the left side, extending apparently from the external ring into the scrotum, and terminating in the perineum: the integuments covering it were tense, but not discoloured. (See Plate I.) Bowels not opened since the descent: tongue whitish: pulse small and quick: no other symptoms. The testicle on that side cannot be detected; but the man states that it is touched when the posterior part of the tumor is pressed upon.

Warm-bath.—Taxis.—Venesection to  $\text{℥xxiv}$ .—Ice to be applied.

Half-past 8 o'clock P.M. Complains of pain in the part: pulse fuller and quicker. Ordered,

Calomel gr. iij. Opii gr. ij. st.; and an injection of house-medicine.

The latter was retained about half-an-hour, and brought away some extremely offensive fæculent matter. At 11 o'clock P.M. he had

Calomel gr. ij. Opii gr. iſa.

June 10: half-past 8 o'clock A.M. Passed a good night: no alteration in the symptoms or tumor.—To repeat the enema; which returned in about ten minutes with a motion somewhat more fæculent than before.

*June 10:* half-past 8 o'clock P.M. Has had another *faculent* motion in the course of the afternoon: he feels somewhat easier, but complains of great thirst; and there is an inflammatory blush about the tumor. Ordered,

Op*i* gr. ij. statim.—M.M. c̄ M.S. 3tis horis.

11: 8 o'clock A.M. Has had three doses of the mixture, but has not passed any motion since yesterday afternoon: tumor much the same: great tenderness over the internal ring: no sickness: abdomen natural.

Ice to be discontinued; Hirud. xl. to the part; and fomentations.

1 o'clock P.M. Ordered,

OL Ricini ʒiſs. Tinct. Op*i* m. v. ex Aq. Ment*h*. Pip. st.

In about half-an-hour this acted effectually, producing a copious motion.

8 o'clock P.M. Has had two motions since; the last containing a considerable quantity of *faculent* matter. Tumor unaltered in size, and still tense, except its lower portion, which slightly fluctuates.

12. The fluctuating part was punctured with an exploratory needle; and three drachms of a dark coffee-coloured inodorous fluid escaped.—White-wash to be applied over the part.

13. Feels a little better. Bowels have been opened three times since yesterday. The fluid has again collected, and an ounce and a half of the same kind of contents was drawn off, which gave great relief.—In the afternoon, forty leeches were applied to the tumor.

14. Passed a restless night. Tumor remains the same; is painful on pressure, more particularly at the internal ring: bowels satisfactorily opened without medicines.

15. There is less pain about the tumor. Bowels open once. Allowed a mutton-chop.

16. Tumor tense and painful, which was relieved by a somewhat freer opening through the previous aperture at the lower part of the sac: this gave exit to several albuminous clots, and darkish-coloured serum.

22. A free incision was made to-day, for the first time, into the sac, and a large quantity of semi-solid matter evacuated.

26. Complained of pain over the situation of the internal ring, similar to that he experienced soon after admission.

29. Much the same. The wound has not taken on a healthy suppurative action.

*July 2.* Whole tumor enlarged and inflamed. During the last few days he has become much altered, his eyes sunken, and he is greatly emaciated.

*July 7.* Has suffered much pain and severe constitutional symptoms from slow suppuration in the sac. These have been partially relieved by spontaneous and artificial openings at the upper part of the tumor, near the external ring.

11. Another opening was made in the lower part of the tumor.

19. The apertures discharge freely; and in the course of the day another abscess burst.

23. The integuments covering the tumor were sloughing; a portion of which Mr. Morgan removed, exposing what appeared to be semi-sloughing omentum and albuminous deposit.

*August 13.* The whole of the integuments covering the tumor, comprising the greater part of the scrotum, has been destroyed by an unhealthy phagadenic ulceration, exposing a large ill-conditioned sloughing mass. (See Plate II.) He suffers much from pain, tenderness, and irritation: has applied white wash, and, lately, poppy fomentations, which in a few days were exchanged for carrot-poultices. Takes morphia at night to allay irritability.

26. Ulceration of the skin has stopped, and a large mass with a sloughy surface is now exposed. Irritability subsided: health improving.

*Sept. 8.* Has had a slight attack of pleuritis on the right side, for which he was cupped, and took calomel and opium: it has now subsided. The tumor has put on a fungoid appearance; the edges are inflamed, glazed, and elevated; and the centre is hollowed and sloughy.—Nitric acid applied to the slough.

23. The removal of the sloughing mass was proposed; but as the man has had diarrhœa for the last two days it was postponed.—He takes the chalk-mixture occasionally.

*Oct. 4.* Diarrhœa lessened. Has hectic appearance: tongue brown in the centre, with the tip and edges red: pulse small, feeble, and rapid: tumor remains the same; is discharging, and throwing off sloughs. Some tenderness in the right hypochondriac region.—Takes wine and nourishment.

From this date he gradually got worse; and sank exhausted on October 18th, at 11 o'clock A.M.

SECTIO CADAVERIS, Oct. 19.—Pleura costalis on the right side of the chest, where pleuritis had existed, was slightly flocculent, but no adhesions or adventitious deposit. The viscera of the chest and abdomen were remarkably healthy, with the exception of the liver, which was somewhat fatty. A portion of omentum had a thickened, puckered appearance, as if it had at one time been contained in a hernial sac. From the internal ring a pouch descended about half-way towards

the external ring, where it terminated in a blind extremity, formed by adhesions of the sides, which did not appear to be of a recent date. These adhesions, which gave the bottom of the pouch a puckered appearance, seemed to have separated the peritoneal cavity from the tunica vaginalis, and, in fact, to have closed up the mouth of what formerly appeared to have been a congenital hernia. A small passage still existed between the bands of adhesion, through which a probe could be passed from the abdomen into the fungoid granulations below. On tracing the chord through the canal into the irregular diseased mass which occupied the scrotum, it appeared to terminate in a body, which, from its shape, had probably been the testicle; but of whose original structure not a trace remained, it being converted into a pulpy, soft fungoid structure, blending in with, and inseparable from, the surrounding mass of irregular fungoid growth. (See Plate III.) This diseased mass, which involved the testes, chord, tunica vaginalis, and scrotum, had extended upwards a slight distance into the inguinal canal, and was girt round, indented, and compressed by the margin of the external ring. The chord above was perfectly healthy; and there was not a trace of disease in the pelvic or lumbar absorbent glands. An ill-conditioned sloughy supuration had extended over the inguinal region, between the integuments and the abdominal muscles.

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Although, from the early history of this case, and from the post-mortem appearances of the omentum and inguinal canal, a congenital hernia had at one time most probably existed, yet there can be no doubt that at the time of his admission the scrotal enlargement depended entirely on fungoid disease of the testicle; and that the constipation was ascribable, not to hernia, but to other causes. The sudden enlargement of the scrotal tumor, which came on under muscular exertion, and which was attributed to the descent of a rupture, was probably induced by the giving way of the tunics investing the disease, and the extravasation of sanious fluid into the tunica vaginalis, some of which was afterwards evacuated by puncture. The attempts made to reduce the supposed rupture had possibly accelerated the progress of the disease, by breaking up the cyst, and disorganizing the mass.

#### CASE 3.

##### *Strangulated Hernia within the Abdominal Cavity—Death.*

JAMES WEGENER, aged 28: admitted into Luke Ward, No. 6, under Dr. Addison, on September 6, 1842: a married man, of rather small and slight make, the cook and steward of a schooner. While in the

enjoyment of excellent health, he was suddenly attacked, on the night of the 2d instant, with severe pain in the centre of the abdomen, and with vomiting: he has since had a variety of medicines prescribed, together with clysters, none of which, however, were retained, and consequently afforded no relief. On admission, he presented the following symptoms:—countenance somewhat anxious: tongue moderately clean: pulse rather accelerated: skin warm, but not hot: bowels have not been relieved for some days: he has pretty constant vomiting of a thin, very green semi-transparent fluid: complains of pain, but not very acute, a little to the right of the scrobiculus cordis, more particularly upon deep pressure: the abdomen was otherwise free from tenderness, was flat, and presented no appearance or feeling of a tumor. Hernia was ineffectually searched for by Mr. Key; and inquiry as to the probable influence of lead in producing the symptoms was quite unsatisfactory. Ordered,

Hyd. Chlorid. gr. iij. Opii gr. i. statim.—C. C. sine ferro scrob. cord.—Hyd. Chlorid. gr. iſs. Opii gr.  $\frac{1}{2}$  post hor. iv., et repet. 4tis horis.

On the morning of the 7th he was much in the same state, except that his tongue was rather dry, his eyes heavy, and there was a disposition to sleep, probably dependent upon the opium. He has passed no motion, and no water; and the sickness was as frequent as before. Ordered, a warm-bath, and warm-water enema to be given while in the bath.

No effect was produced by the bath, except some little exhaustion. At noon, the catheter was introduced, and three ounces of rather turbid but not high-coloured or ammoniacal urine drawn off. In the evening he was ordered,

Aloes Barb. gr. ix. Acid. Sulph. gutt. iij. m. ft. pil. ij. st. sum. et repet. 3tis horis.

10 o'clock P. M. Sickness still constant, and of the same character: no motion; pills vomited; pulse more feeble; and his countenance is depressed, as well as anxious.

Acid. Hydrocyan. (Scheele) m iſs. Magn. Cal. gr. xij. Mist. Camph. ʒiſs. semi-horâ ante pil. sumend.

On the morning of the 8th, there was much greater prostration, and a considerable disposition to a somnolent and semi-comatose condition: he was sensible when spoken to; and when moved or turned, vomiting or violent retching generally ensued: his countenance was more anxious, and his features compressed; his voice weak: he was restless, and constantly tossing about in the bed: he has had no

motion ; and the catheter was again introduced, but there was no water in the bladder : his pulse is more feeble and frequent, and he appears to be sinking. Ordered,

Enema Terebinth. statim.—Empl. Lyttæ Nuchæ.—Brandy-and-water in small quantities.

He got gradually lower, and sank about 10 A.M. the next day, being seven days after the first attack.

INSPECTIO CADAVERIS—five hours after death.—The peritoneum was rather dry, and had a greasy feeling to the finger : that covering the convex surface of the liver was adherent by old and perfectly cellular bands to the lower surface of the diaphragm, while the concave surface was united by several bands, of the same kind and age, to portions of the transverse arch of the colon. The intestines were healthy in external appearance, and generally considerably contracted. On tracing them carefully, an old cellular band was discovered, connected and firmly adherent to the very commencement of the jejunum and to the peritoneum covering the adjacent spine : this band, firm and tough, of the thickness and breadth of a tape-worm, formed a loop about large enough to admit the thumb : through this loop the whole of the small intestines had passed, excepting the duodenum and a small portion (one inch or two) of the ileum. There was no stricture and no strangulation, or at least no evidence thereof, but the duodenum was twisted necessarily upon itself : this formed the obstruction. The duodenum was distended with green bilious fluid, and the stomach with gas : the coats of the intestine, at the point of obstruction, were slightly thickened, but not inflamed ; kidneys healthy ; bladder contracted ; lungs healthy ; pleuritic adhesions.

#### CASE 4.

##### *Strangulated Oblique Inguinal Hernia—Reduced—Symptoms unrelieved—Operation—Death—Internal Strangulation.*

HUGH PRITCHARD, aged 27 : admitted into Accident Ward, under Mr. Cooper, on November 30, 1842 : a married man, a native of Wales, and by occupation a sailor : of sanguine temperament, dark hair and eyes, healthy and temperate. He states, that about eight years ago he was first the subject of a right scrotal hernia, and that it occurred suddenly from a blow on the inguinal region : it was reduced after some hours' treatment. He wore a truss for a short time, during which there was still a tumor existing ; and he has left it off entirely for the last twelvemonth or more. The testicle on that side has been enlarged, and there has also been a fulness of the scrotum on the same side.

Between 4 and 5 o'clock this afternoon, while using a handspike, it suddenly broke, and he fell, receiving at the same time a blow on the right iliac fossa. He states that he then felt the hernia descend. His bowels were opened one hour and a-half before the accident. On admission, about seven o'clock in the evening, his symptoms were not very urgent: a good deal of pain in the situation of the tumor was complained of; but there was no vomiting or anxiety of countenance. There is an enlargement in the right inguinal canal, extending into the scrotum on the same side; that in the canal, however, being particularly tense. The taxis was applied ineffectually, now and in the warm-bath: he was then replaced in bed, cold applied to the hernia, and calom. gr. iij. opii gr. ij. administered. Soon after this, Mr. Callaway saw him: the tumor was more lax; and on examination it appeared to be merely fluid in the scrotum, as the external ring was free; while in the canal there was evidently intestine, which, under the application of the taxis, Mr. Callaway returned: an enlargement in the course of the canal, however, still remained.

*Repet. Cal. et Opium.—Enema ex Haust. Sennæ.*

*Dec. 1.* He has rested tolerably during the night: enema has not returned: some tenderness in the abdomen.

*Fomentations to the abdomen.—Ol. Ricini ʒiss. statim.*

2 o'clock P.M. He has been vomiting for the last hour: bowels have not been acted upon. Mr. Cooper saw him, and, on examination, considered the hernia to have been reduced.

*Enema ex Haust. Sennæ st.; which immediately returned.*

*Repet. Calomel gr. ij. Opii gr. ʒss.*

8 o'clock P.M. Still obstinately sick: bowels not open at all. There is now a good deal of pain over the abdomen, distress of countenance, and every symptom of strangulated intestine. The vomited matter is of a bright green colour. He had, at 12 P.M., 2 gr. of opium.

*Dec. 2.* 9 A.M. Symptoms continued during the night, but became somewhat relieved towards morning: during the last three hours he has not vomited: there is less abdominal pain, tension, and general distress; and he appears under the influence of the opium.

*Enema ex Haust. Sennæ.*

At noon, the vomiting recurred; and in the course of the day the injection returned, without bringing away any faecal matter. Mr. Cooper ordered him

*Hyd. Chlorid. gr. i. 6tis horis.*

8 P.M. Much the same: bowels unrelieved.

Dec. 3. In much the same condition : pulse 70 : tongue dry : bowels not yet acted upon. Ordered,

Ol. Ricini ℥vi. Decoc. Hordei Oi. statim.

Hirudines xvij. inguini, et postea Fetus.

8 o'clock P.M. Injection returned, bringing with it some scybalæ : abdomen is somewhat more tympanitic : rejects every thing that he takes : tongue dry.

4. Remains much the same, his symptoms perhaps somewhat diminished in urgency. — To continue the calomel, and to have another castor-oil injection, which returned in about half-an-hour, bringing away some small portions of solid fæces, and a good deal of flatus. In the course of the afternoon, the vomiting became stercoraceous; and a very large quantity has been evacuated : abdomen still tympanitic.

5. Another portion of the injection returned during the night, bringing one large scybalous mass : vomiting more stercoraceous : tongue dry, and slightly furred. Mr. Cooper ordered another injection, which partly returned soon afterwards.

At 2 o'clock P.M. it was considered advisable to examine the inguinal canal and internal ring. Mr. Cooper therefore made an incision through the external oblique tendon, exposing the chord, which bulged forward, and evidently consisted of something more than the spermatic vessels. An incision was made into the fore-part of this tumor, and laid open a serous cavity extending along the canal, and communicating with the tumor in the scrotum, the fluid contents of which were discharged : within this sac was an elongated portion of healthy omentum, incarcerated (but not at all compressed at the opening of the internal ring), and extending along the canal, just through the external ring, into the scrotal tumor : the two rings had preserved their normal distance from each other. No intestine was discoverable in any part of the canal, or vicinity of the internal ring. This latter opening just admitted the point of the finger : it was dilated, and then the finger could be passed into the abdomen, and the intestines felt. The omentum, being partially adherent and congested, was left in the canal. Just at the conclusion of the operation he had a motion, chiefly injection, but of a most decided fæcal odour, the first of this character he has had. In the evening his pulse rose, being about 96, tolerably full and soft : he has passed a very large quantity of fluid fæculent matter : abdomen still tympanitic, although the tension is relieved.

6. He has had several motions during the night ; skin moist : tongue cleaner : no sickness or tenderness in the abdomen : edges of the wound healthy.



Dec. 7. Had a motion early this morning, but has passed a very restless night: pulse 110, and with less power: great anxiety and distress: tongue dry: abdomen tense.—Fomentations to the abdomen. Mr. Cock ordered him,

Tinct. Opii m xx. ex Aq. Menth, Pip. ʒiſs. statim.

This procured him two or three hours sound sleep. Mr. Cooper saw him at 1 in the afternoon, and ordered him,

Pulv. Jacob. gr. iij. Hyd. Chlorid gr. ij. Opii gr. ʒ. statim; et repet. si opus sit.

In the evening there was an erysipelatous blush about the wound and scrotum.

8. Very restless during the night: countenance anxious: pulse quick and feeble: tympanitis increased: scrotum hard, swollen, and inclining to vesicate: bowels have not been opened since yesterday morning. He continued gradually getting worse and more feeble. In the evening, sickness came on; and as he turned round in his bed to vomit, he died, somewhat suddenly, about 6 o'clock A.M., on December 9th.

INSPECTIO CADAVERIS, seven hours after death.—Body rigid; rather warm; abdomen rounded and tympanitic, but not very resonant: the adhesions at the edge of the wound imperfect; granulations of a dark colour: the cellular tissue of the scrotum infiltrated with albuminous matter.

On opening the abdomen, the intestines were adherent more or less to the abdominal parietes: there was general peritonitis; and the intestines were more or less perfectly glued to each other, with a large accumulation of coagulable and probably organizable lymph, not broken down or puruloid. The small intestines were distended with gaseous and fluid contents: the extreme convexities and free portions of the convolutions were of a pinkish hue, from a high degree of inflammation. The omentum was seen passing over the small intestines on the right side, becoming narrowed and more dense in its structure as it was traced downwards; and before arriving at the internal ring, formed an irregular column, about the size of the finger, and continued its course in this form into the inguinal canal, to the inner walls of which it was adherent. On separating some of the adhesions between the coils of the intestines, about three inches above the internal ring on the right side, and between the spine and the ascending colon, a portion of the intestine gave way to a small extent, presenting an opening rather larger than the section of a quill, and allowing the escape of some bilious-looking matter resembling the stools passed since the operation. On tracing the continuous,

distended, and inflamed intestine towards its termination, which seemed to be suddenly arrested for three inches before its arrival at the cæcum, the diseased condition appeared to terminate; and, corresponding to its line of termination, that portion of the intestinal canal was compressed by a dense cord-like structure passing over, but not adherent to it, attached by its left extremity to the inferior part of the root of the mesentery, and by its right to the omentum, just as the latter entered the inguinal canal; so giving two fixed points of attachment to this abnormal band. (See Plate IV.) That portion of intestine immediately above the seat of constriction presented, for two or three inches upwards, a somewhat rough appearance from the deposit of lymph upon it; and it was of a darker colour (purple) than the other portions of the intestinal canal. It was crossed by three or four lines, each of which appeared to have been successively the seat of pressure from the band just mentioned. There can be no doubt but that this band was the sole cause of intestinal obstruction, giving rise to all the symptoms of strangulation, and to fatal peritonitis. It is not easy to explain through what influence the canal of the bowels became subsequently restored, as evinced by the copious alvine evacuations which immediately succeeded the operation. On examining the small aperture formed by the separation of the coils of intestine from each other, it appeared to be the result of destruction of tissue from inflammation proceeding from within, as two or three other spots were found a little higher up presenting nearly the same condition; the cylinder of intestine being thus only maintained by the peritoneum, which was just on the point of sloughing. The mucous membrane was of a fine red colour and velvety appearance, from active inflammation. The peritoneal surface of the large intestines, and that portion of the ileum between the constriction and cæcum, presented very little, if any, appearance of inflammation.

**PLATE I.—CASE 3.**

(*See* p. 128.)

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**Appearances presented by the scrotum, and along the course of the inguinal canal, at the time of the patient's admission.**



*W. H. H. del. A. N. H. lith.*

*Printed by M. & N. Hanhart*





**PLATE II.—CASE 3.**

(*See* p. 128.)

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The state of the parts at an advanced stage of the disease, resembling sloughing omentum.

Pl 2.



W. H. H. del et lith.

Printed by W. & A. Nichol







**PLATE III.—CASE 3.**

(*See* p. 128.)

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*Fig. 1.* Section of the diseased chord.

*Fig. 2.* Section of the diseased testicle.

Fig a



Fig b







**PLATE IV.—CASE 4.**

(See p. 129.)

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**A RIGHT LATERAL VIEW OF THE DISEASED PARTS, THE BODY BEING  
PLACED ON THE BACK.**

1. The superior attachment of the ligamentous band to the mesentery.
2. The inferior attachment of the same band to a portion of omentum.
3. Intestine above the strangulation.
4. Intestine below the strangulation.
5. Section of omentum.
6. Round cord-like portion of omentum passing to the internal ring to reach the scrotum.

The strangulated portion of intestine lies posteriorly concealed from view by an overlapping fold.

Pl 4







ACCOUNT OF OBSERVATIONS  
MADE UNDER THE SUPERINTENDENCE  
OF  
DR. BRIGHT,  
ON  
PATIENTS WHOSE URINE WAS ALBUMINOUS:  
BY GEORGE HILARO BARLOW, M.A. & M.D.  
WITH  
A CHEMICAL EXAMINATION OF THE BLOOD AND SECRETIONS,  
BY G. O. REES, M. D.

THE few following pages will be found to contain the record of the first experiment which, as far as I know, has yet been made in this country to turn the ample resources of an hospital to the investigation of a particular disease, by bringing the patients labouring under it into one ward, properly arranged for observation. I fear that the attempt has been less effective than it might have been, and than, I trust, others will hereafter prove; but if this is the case, the imperfection must fairly be ascribed to my want, not so much of zeal as of time, for carrying out, in its fullest extent, a most interesting experiment.

The Clinical Wards of Guy's Hospital seemed to afford a most appropriate opportunity for the object in view; and I applied to the Treasurer of Guy's for permission to occupy them after the Clinical Session had concluded, in May. Mr. Harrison entered heartily into the plan, and offered every facility. Accordingly, it was determined, that from May to October I should be allowed the full use of the Male and Female Clinical Wards; and all my Colleagues readily granted permission to select any cases from the other wards which I might consider likely to promote the object.

Dr. Barlow, with the greatest readiness, undertook to make up for my neglects; whilst Dr. Rees took charge of the chemical part of the inquiries: and it is entirely to these two that our Reports are indebted for the connected account of proceedings which the present communication contains.

Our establishment then consisted of a female ward with eighteen beds; a male ward with twenty-four beds\*; a room between the two wards for the meeting of the Physicians and Pupils, and for the registry of the cases; and a small laboratory communicating with the middle room, fitted up and decorated entirely to our purpose.

Dr. Barlow and myself were in charge of the medical treatment of the cases, with the assistance of Dr. J. T. Francis, Mr. J. H. Browne, and Mr. Allen Williams, as Clinical Clerks, whose duty it was to take daily reports.

Dr. Rees had charge of the laboratory, in which he was assisted by Mr. Pearce; and, thus prepared, we began our operations, and proceeded pretty steadily with them.

The objects which we proposed to ourselves were, to examine, as far as it was possible, the changes which accompanied the secretion of albuminous urine in the various functions and secretions of the body; whilst at the same time we registered the various circumstances connected with the origin, progress, and treatment of the disease;—a disease than which there is certainly none which offers a more extended field for careful and well-directed observation.

R. BRIGHT.

#### CASE I.

*Edema for three weeks—Pain in Lumbar Region—Menorrhagia—Convulsions—Recovery of Consciousness—slight Stertor—Death.*

ANN OSBORNE, aged 42: admitted into Lydia Ward, May 18, 1842: of large frame, with dark hair and eyes: a widow, who has borne six children. She has been employed in washing, and latterly in turning a mangle; both which occupations exposed her to transitions from heat to cold. She has always resided in London: her habits have been temperate, and her diet poor.

The catamenia continued pretty regular up to last Christmas; since which time they have appeared but once, and then slightly. There is no discharge at present.

She had scarlatina very severely when a child; but since

\* These wards, especially the Female, were not filled upon this occasion; as, owing probably to the warmth of the weather, this disease was less prevalent than usual last summer.

then, until the commencement of her present illness, her health has been good.

At Christmas last, without any unusual exposure to cold, she had a profuse flooding for three days, accompanied by pain in the loins and vomiting; and a few days afterwards she first observed her urine to be very scanty, dark-coloured, and thick. She continued, however, to expose herself at her occupation until three weeks ago, when she first observed that her feet were swollen; and having gradually become very weak, she was unable to work longer. Her face was first perceived to be swollen a few days ago. During all this time her urine has been very scanty, and latterly very pale, but not habitually passed in the night. She has almost daily vomited a dark fluid, sometimes immediately after meals, but generally at intervals between them. She describes her stools to have been, for the last three weeks, like pitch: has often had flatulent distention of the abdomen. For the last few days her lower extremities have been so weak as scarcely to support her. She has had cramps in the calves of the legs and thighs at intervals, night and day, for some months past. Does not recollect the state of the skin; save that she perspired very much at first.

At present, her limbs and trunk are emaciated: her face pale, bloated, and dejected: pitting slightly on pressure, especially round the eyes: lips, and mucous lining of the mouth, pale: tongue moist, indented by the teeth, and coated in the centre with a rough white fur: skin smooth, soft, and moist: pupils natural: conjunctivæ pearly: considerable œdema of the feet and legs: slight œdema, and superficial tenderness of the loins: respiration 22, easy: pulse 88, and feeble.

Abdomen round, prominent, and tympanitic; with tenderness, on pressure, in right hypochondrium.

No abnormal sounds in respiration: heart's action regular, with good impulse: there is a rough grating sound with the second stroke, heard most distinctly just to the right of the nipple.

Urine, almost colourless, scanty and clear: specific gravity 1008; rendered slightly opalescent by heat and nitric acid.

She was ordered two grains of hydrarg.  $\bar{c}$  cret. with five of ext. of hyoscyamus, every night: and five minims of dilut. sulph. acid. in compound infusion of roses, three times a-day.

She continued in nearly the same condition (her skin being moist, the urine about twelve ounces in the twenty-four hours, of the same appearance and re-actions as at first, and varying in specific gravity from 1007 to 1011) till the 23d, when she complained, at night, of pain commencing at the right scapula, and passing around the loins: the swelling of the legs was much less: pulse not accelerated: the pain was not increased by inspiration or moderate pressure. This pain continued; and on the morning of the 25th her pulse was natural: tongue moist and furred: she had thirst, and a sense of constriction in the throat: there were no abnormal sounds in the chest. Five ounces of blood were taken from the arm; and slight faintness, with quick relief of the pain, ensued. Two or three hours afterwards she was seized with floodings of clotted blood, unattended by any pain, which continued until the evening, when it was checked by the introduction of a sponge soaked in vinegar into the vagina. At 8 o'clock, on the morning of the 26th, while answering a question quite rationally, she suddenly fell back in an epileptic fit, from which she recovered in about a quarter of an hour. The pupils were contracted; the face pale; and the pulse slightly accelerated. At 9 o'clock she was quite collected, and complained of weakness: she had no headache nor sickness: superficial veins turgid; carotids throbbing strongly: respiration 22, easy: pulse 92, small: tongue not-furred. Her head was shaved, and wine was allowed. During the following night she remained quieter, but moaned, and complained of pain at the top of the head. On the morning of the 27th she was free from pain, and answered questions rationally. She gradually sank; and died about midnight, having complained quite rationally of pain in the right side, about five minutes before her death.

No inspection could be obtained.

The following Observations were made upon the blood and urine by Dr. Rees, May 24 and 25:—

*Serum*: specific gravity, 1031.

Containing Albumen 12·10 per 1000.

. . . . Urea . . 0·54 per 1000.

*Urine*: specific gravity 1010. Containing 0·35 gr. of albumen in two fluid ounces: very slightly coagulable.

CASE 2.

*Albuminous Urine, following Scarlatina—Cerebral Symptoms—Death.*

HENRY STANLEY, aged 6; admitted June 15, 1832: a lively intelligent little fellow, with light complexion, blue eyes, and rather a large head.

A year ago he had a fit, during which he was insensible for several hours: excepting this, he has been pretty free from sickness. His father had diabetes; and his brother, albuminous urine.

Five weeks ago a vivid rash of scarlet fever appeared over the whole body. Four days afterwards he first had medical advice from the Surrey Dispensary, and took antimonial medicines and mercury; and was kept within doors, but not to his bed. A fortnight after the seizure, the skin was desquamating; and the mother, thinking him pretty well, took him to the Dispensary. At this time the glands of the neck were enlarged; but there was no other swelling until two days afterwards, when the whole body became anasarctous, and the urine scanty, dark, and muddy. At this time also he began to cough. Ten days ago he vomited several times in the day; which has been repeated every day since. A week ago he had severe pain in the loins, passing round the belly; for which three leeches were applied, and bled freely, no difficulty being found in stopping the bleeding. He has not complained of headache, and was as lively as usual, until four days ago; since which time he has been sleepy and heavy.

At present, the face is pale; the cheeks distended with œdema, which is not present elsewhere: skin of natural softness, moisture and temperature, excepting the palms of hands and feet, which are hot; eyes bright and intelligent; pupils contracting naturally: tongue not pale, smooth, moist, slightly furred: respiration 32: pulse 96, jerking, and rather wiry.

Chest *anteriorly* resonant on percussion: respiration loud and puerile on right side: universal sonorous and mucous rattles on the left: *posteriorly*, bronchial sounds pervade the whole chest, and occasional small crepitation: slight dulness and resonance of voice at the base of the left lung.

Urine rather light dingy brown: sp. gr. 1011, and acid: quarter of tube of deposit after heat and acid.

Vol. I.

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J. A. A.  $\frac{3}{4}$ ss. Sp. Æth. Nit. m vi. t. d.

Hydrarg.  $\bar{c}$  Cret. gr. ij. P. Ipecac. gr. ss. 6tis horis.

17. Urine  $\frac{3}{4}$ vij. acid, sp. gr. 1011: same appearance and re-action.

Until the 22d, his progress was favourable; but the character of the urine continued unchanged.

22. He vomited several times during the night a bilious fluid: at present, the respiration is much more hurried, and he is listless and drowsy: pupils natural: bowels freely open: tubular respiration posteriorly, and dulness on right side.

Urine (quantity not known), same appearance: sp. gr. 1012, acid, with a slight increase of deposit with heat and acid.

Hydrarg.  $\bar{c}$  Cret. gr. i. P. Ipecac. gr.  $\frac{1}{4}$ . t. d.

23. Vomited again several times during the night a bilious fluid: not quite so much drowsiness to-day: breathing still hurried: skin hot and dry: tongue coated with moist yellowish fur: pulse 120, sharp, and rather wiry.

Urine  $\frac{3}{4}$ xiv. rather more dingy: sp. gr. 1014: acid: same re-action.

V. S. ad  $\frac{3}{4}$ ij.

Omitte P. Ipecac.; et P.—Emp. Cantharid. sterno.

A vein was opened in the arm: a few drops of blood and a little serum flowed. He appeared more faint after the operation: cold perspiration bedewed the forehead and countenance: face anxious and pale: pulse rapid and thready: respirations frequent, but not laboured: he became alternately sleepy and restless; and died at 4 o'clock P. M., having spoken quite naturally five minutes before.

**SECTIO CADAVERIS.**—The body generally was emaciated and anasarctous: the head, when viewed from above, appeared large: the superficial veins rather full.

The calvaria was readily separated from the dura mater, which appeared healthy; but the arachnoid lining it was rather too dull. The arachnoid covering the pia mater was opaque, as if from chronic change; and underneath it was a considerable quantity of limpid straw-coloured serum. There was some adhesion of the hemispheres in the longitudinal fissure. The vessels of the brain were healthy: the

veins rather full, especially posteriorly. Connected with the pia mater, and dipping into the cineritious matter, were several small bodies of rather doubtful appearance: some of them were small calcareous concretions, no larger than grains of gunpowder; whilst others were as large as small peas, and consisted of a distinct cyst enclosing some yellowish curdy matter: about eight of these bodies were noticed. The brain, generally, was pale, but otherwise healthy: there was nearly two drachms of clear fluid in each ventricle.

There was considerable effusion into each pleura: the membranes themselves being healthy. The lungs consolidated and fleshy throughout; everywhere but feebly crepitant; and in many parts granular when lacerated, as if from pneumonic consolidation. No emphysema or dilatation of the tubes: the trachea healthy. Just behind the bifurcation was a cluster of hydatids. Frothy mucus in the bronchiæ. Pericardium natural; containing about an ounce of clear straw-coloured fluid. The heart rather large; but there did not appear to be any loss of relation between its cavities: the lining membrane and walls were healthy: both sides contained coagula, but the right was rather gorged: the valves were healthy, as were also the large vessels.

The peritoneum contained a considerable quantity of limpid straw-coloured serum; but the membrane itself appeared healthy. The liver was, perhaps, large for the age; as was also the spleen. There was no apparent lesion of the mucous membrane of the stomach that might not be ascribed to cadaveric alteration.

The kidneys were of natural size, and, before the tunics were removed, appeared pale. The tunic was readily removed without any laceration of the cortical substance, and appeared healthy: the exposed surface was very pale, and in some parts of a dirty-white colour. When a longitudinal section was made, the cortical substance appeared very pale, and in some parts coarse; whilst in others the texture appeared more homogeneous than natural. The striæ were unaffected. The tubular structure seemed congested, and in this respect presented a strong contrast to the pale cortical structure.



Urea was found by Dr. Rees in the blood taken from the heart after death, and also in the effused fluids.

The specific gravity of the fluid in the ventricles of the brain was 1006.

|           |                      |       |
|-----------|----------------------|-------|
| . . . . . | pleuræ . . . . .     | 1010. |
| . . . . . | peritoneum . . . . . | 1018. |

There can be little doubt, from the tubercles which were found connected with the pia mater in this case, that there existed a great liability to meningitis: at the same time, it is also highly probable that its exciting cause was the change in the blood produced by the disease of the kidney.

### CASE 3.

*Anasarca—Dyspnœa—Albuminous Urine—Hemiplegia—Death from Sinking—Clot in the Corpus Striatum.*

CHARLES SCOTT, aged 32, a wine-cooper living in Spitalfields, of decidedly leuco-phlegmatic appearance, with pearly-looking eyes, light complexion, and of a small frame, was admitted into Job Ward on May 12, 1842. Has generally enjoyed good health: has indulged in beer and spirits to excess, but during the last two years has been more temperate; and frequently exposed to wet and cold, often when much heated; and for the same period has been subject to cough and dyspnœa, with depression of spirits, and frequent bilious sickness: he had syphilis sixteen years ago, and was then salivated: had small-pox when a child, and has been subject to occasional slight epistaxis; and during the last four or five months has often passed blood with and after his alvine evacuations (hæmorrhoidal). Says that he never perspired, even when working hard in the summer. He received a blow on the loins five years ago, from the effects of which he recovered in a few days. About eight weeks before admission into Job Ward, after exposure to wet and cold, he had severe cough and increased dyspnœa, with pain in the loins and "weakness in the knees": and about a month previously and subsequently has had frequent nocturnal calls to micturate; the urine being also increased in quantity, and of a paler colour than usual: and six weeks ago he found his feet and ancles swollen and puffy, the œdema

gradually extending to the thighs, scrotum, penis, abdomen, thorax, and face, as well as to the upper extremities. About this period the lumbar pains left him; but his dyspnoea was much increased, compelling him to maintain the semi-recumbent posture; and during the last fourteen days has had hacking cough, with slight frothy but viscid expectoration: has already been in the hospital, in another ward, five weeks; and has been bled in the arm, had a blister applied to the chest, and been taking saline mixture with antimonial wine; and, as his bowels were confined, occasional doses of the pulvis elaterii, to the amount of one-eighth of a grain, repeated every three or four hours till freely operating. His urine has, throughout his treatment, been very coagulable by heat and nitric acid.

His present appearance is anæmial: the intellectual and sensorial functions are perfect; but he has severe cramps in the legs: his general surface slightly anasarcaous, excepting the arms and face: the penis, scrotum, and lower extremities, very much so. The abdomen is not much increased in size; but fluctuation exists in it: there is no abnormal dulness, on percussion, in the right hypochondriac region below the ribs. The heart's impulse is moderate, sounds rather indistinct, otherwise normal: the pulse is 96, small, and compressible. The chest is, on the left side, resonant: the respiration is vesicular, excepting in the axilla and at the base posteriorly, where it is supplanted by sub-mucous ronchi. The right side, on percussion, is dull, as high as the nipple anteriorly, and above the inferior angle of the scapula posteriorly, with deficiency of respiratory murmur, which is either absent or distant. There is no ægophony or bronchophony. The respirations are 25 in the minute. The saliva neutral: the tongue clean and moist, indented by the teeth: the skin dry and rough: the bowels confined, unless aperients are exhibited: urine acid, pale, of specific gravity of 1010, moderately coagulable by heat and nitric acid: about forty-eight fluid ounces in twenty-four hours: complaints of fulness and oppression about the præcordial region.

He was ordered to take one-sixth of a grain of elaterium, and half-a-drachm of pulvis jalap. comp., and six drachms of

liq. amm. acet., and half a drachm of antimonial wine, three times a-day; and to have low diet. The action of the elaterium was free, and attended by relief to the sensation of fulness and oppression; which, however, returned, with constipation and increased dyspnœa. The urine continued acid: about thirty-five ounces passed in twenty-four hours, and presenting the same re-action until the 17th, when the specific gravity was 1008. The dulness on the right side was less extensive, and sub-mucous ronchi were heard about its upper border; and about two inches below the right nipple there was a pleural friction sound. The elaterium was repeated, producing vomiting and free alvine evacuations, with slight hæmorrhoidal flux: it was followed by relief to the dyspnœa and fulness, but without diminution of the anasarca, though the general appearance of the countenance was improved. Was ordered to have beef-tea and arrow-root.

He continued without much alteration. When the bowels were confined, the elaterium was given with relief.

On the 24th, the elaterium was repeated, producing watery evacuations, with relief to the fulness and abdominal distention.

He has continued, since admission, to micturate twice or three times nightly; and is now occasionally troubled with unpleasant dreams, and passes disturbed nights. Respirations about 34 in the minute. He took elaterium on the 26th; and was ordered to have half-a-drachm of sp. æth. nit. added to each dose of the mixture. The urine increased to thirty-eight ounces on the 27th. He complained, on the 30th, of great languor and uneasiness; slept badly; and the bowels continued confined: a senna-draught was given, the elaterium having acted but sparingly, only four times: the urine had, on the 31st, become reduced to thirty ounces, and of the specific gravity 1010. He clandestinely took some gin twice or three times, and afterwards became very heavy, dozing and snoring; and on the morning of June 1st, his face was drawn to the right side: he was very dull, heavy, and stupid; but quite sensible when roused: the left side was quite paralysed, with but very slight sensation: he could open and shut the eyes, and vision was unimpaired: the tongue, which was protruded straightly, was moist, and

rather furred: urine passed unconsciously: bowels open three or four times on the 31st: pulse 104, small, and sharp.

A blister was applied to the nape of the neck.

On the following day, though incoherent, he was conscious of the passing of his urine: bowels open once: had more sensation, and could just move his left leg: vision and hearing perfect: mouth still drawn to the right side: tongue protruded straightly. He was rather less drowsy: cough troublesome: respiration wheezing and laborious: no expectoration: sub-mucous and mucous ronchi more evident: pulse 98, very compressible: head hot, with throbbing of the vessels of the neck.

Fifteen minims of *tinctura cantharidis* were added to each dose of the mixture.

He gradually regained partial sensation, but paralysis of motion continued. The stools were passed naturally; and the urine could be retained sufficiently long to enable him to get the vessel to receive it: on the 4th, passed about forty ounces of urine, of specific gravity 1012: bowels were open three times: the abdomen very flatulent: evacuations rather pale: he was ordered a senna-draught, with 30 minims of spirit. ammon. aromatic. The bowels were freely acted on by the draught, and the distention diminished: the skin was moist, occasionally perspiring. The tympanitic distention returned, and injections of *asafœtida* were administered occasionally; and a pill ordered twice daily, containing a grain each of pulv. *scillæ*, pulv. *ipêcac.*, pil. hyd., and ext. *hyoscyam.* The urine continued very albuminous: and he complained of pains; first affecting the paralysed leg, and subsequently the whole of that side. The respiration continued hurried and laborious, and the cough troublesome. The pulse was firmer, and still frequent: and on the 8th he was ordered, as the bowels were confined, to take five grains each of compound ext. of *colocynth* and compound *galbanum* pill every four hours, till the bowels were relaxed: an *asafœtida* injection in the evening; and he was bled to six ounces. The blood was buffed and cupped; and the respiration was somewhat relieved, and heard rather lower on the right side than it had been: the crackling pleura friction was still heard. The urine was diminished in quantity to thirty ounces in twenty-

four hours, continuing copiously coagulable, and of sp. gr. 1013: the paralytic symptoms continued with little variation, sensation being rather improved, the pains in his paralysed limbs remaining; but the œdema had diminished, especially in the right side, which had been less dependent. The alvine evacuations were scanty; and there was more abdominal effusion, with flatulency: the cough continued troublesome.

On the 17th, was ordered a quarter of a grain of elaterium, with three grains of Dover's powder, and a scruple of tartrate of potassa, directly; and mucilaginous mixture, with fifteen minims of tinct. of benzoïn. and ten minims of vin. ipecac., every six hours; and to repeat the pills every night and morning. His cough was slightly relieved, and he gained rather more strength. A blister was applied to the sternum on the 23d, the cough being more troublesome, and respiration more hurried; and, as there was sickness, the ipecacuanha was omitted, both in the mixture and pills: and on the 25th a saline mixture, with half-a-drachm of syrup of poppy and of the extract of taraxacum, was prescribed.

On the 30th, the cough was much better: the paralysis much the same: he had some difficulty in micturition, not being able to evacuate the bladder unless immediately obeying the call; and the bowels were very relaxed: the submucous rattles were diminished, the other stethoscopic signs continuing the same: the urine was rather clouded, still acid, and diminished in quantity. He continued much the same until July the 5th, complaining still of occasional sickness, the bowels being more relaxed; and he felt very weak and low, the pulse being more feeble. Was ordered two minims of dilute hydrocyanic acid three times in a day, in the aromatic chalk-mixture; and to take soda-water and brandy.

On the 8th, passed much less urine, of sp. gr. of 1016; and the sickness was not much less; but the bowels were less relaxed, although still very loose. A drachm of tinct. catechu was added to each dose of the mixture: and on the 9th, mist. kramerizæ was prescribed, as the looseness continued. The bowels were afterwards less relaxed; but the sickness continued, and his spirits were much dejected.

On the 11th, the urine was natural, sp. gr. 1012, still cloudy, about twenty-eight ounces, and less coagulable by

heat. A sinapism was applied to the scrob. cordis; and two minims of Scheele's hydrocyanic acid, fifteen grains of sesquicarbonate of soda, and a drachm of spiritus myristicæ, were ordered every six hours, in water. He vomited every thing, except calves'-foot jelly and brandy-and-soda-water; and the bowels were relaxed. A starch-and-opium enema was given on the 15th, with relief to the diarrhœa: he had become much weaker, prostrate, and helpless: the urine continued of the same quantity and quality: and the œdema of lower part of the body and the ascites continued, though his face was much emaciated.

On the 22d, he had more power in the paralysed leg, and could move it a little: the sickness was somewhat less: he was taking brandy with milk, instead of the soda-water, and continuing the mixture with soda: the pulse was very feeble and small. Isinglass was given with milk: and on the 25th the urine was more abundant, being nearly three pints, of sp. gr. 1010, with a similar re-action; much more being thrown down by acid than by heat: the bowels, however, were more relaxed. He was ordered a starch-and-opium enema: and on the 31st, being still relaxed, aromatic confection, with five minims of tinct. opii and peppermint-water, were given three times daily: after which he felt much more comfortable, the sickness having ceased for two days; and he again began to relish his food, which consisted of beef-tea and arrow-root, with milk and brandy.

On August 2, the bowels were but slightly relaxed. On the 3d, he was ordered nine grains of rhubarb, with six of comp. chalk-powder with opium, to be taken directly: and on the following day, as the bowels were confined, a larger dose of the same. He was more comfortable and refreshed; but as there was more tendency to sickness again, he could take but little nourishment; and on the 5th of August was again troubled with vomiting:—the bowels were open once or twice daily. He was ordered three grains of calomel and one-third of a grain of opium directly; and to take the tartrate and carbonate of soda with citric acid in a state of effervescence, for which was afterwards substituted the common effervescing citrate of potassa.

On the 13th, having been getting weaker and more helpless,

the bowels more relaxed, and the pulse very feeble and frequent, and the lower part of his back getting very sore from lying in the same position, the *mistura cretæ*, with a minim of Scheele's hydrocyanic acid, was ordered three times a-day, which diminished slightly the sickness and looseness: but on the 15th he had been very much depressed with feelings of sinking; with pain, fulness and heat in the abdomen; and more nausea and relaxation, with pains in the limbs; and was ordered *mist. mucilag.* and *mist. cretæ* in equal parts, with aromatic confection and four minims of *tinct. opii* every six hours. He, after this, daily got weaker and lower, taking nothing but isinglass and wine; complaining of flying pains in the legs and arms, especially on the paralysed side: the nausea and relaxation ceased: the urine presented the same appearances, but was passed unconsciously for some days; and he gradually sank and died on the morning of the 25th.

**SECTIO CADAVERIS**, ten hours after death.—The body generally emaciated; the right extremities œdematous; and the abdomen distended.

*Head.*—Slight opacity of the arachnoid, with a little sub-arachnoid effusion. The cerebral arteries thickened. An apoplectic clot of a dusky-red-brown colour, and of the size of a small walnut, in the right corpus striatum. No abnormal quantity of fluid in the ventricles.

*Thorax.*—There was a large quantity of fluid in both pleuræ; but the right contained the most. The right pleura was generally opaque; but this was most obvious in that part covering the lower lobe, where it was also contracted, giving to the lung a feeling of elasticity, from its compression. The left pleura was also dull, and, at the base, firmly adherent to the diaphragm.

The lungs were generally too full and fleshly; but this was more particularly the case with the lower lobe on the right side. There were a few patches of old pulmonary apoplexy. No emphysema was observed. The trachea appeared of fair size, and its lining membrane rather œdematous, as was also that of the bronchi. The bronchial tubes contained a copious frothy mucus.

The pericardium contained a few ounces of serum ; but the membrane appeared otherwise healthy, excepting over the enlarged coronary arteries where it was opaque : there was also a little lymph near the origin of the aorta. The heart was rather large ; but the excess, above the normal size, attributable to the left ventricle. The right auricle and ventricle were of natural size and thickness. There was considerable opacity of the endocardium near the auriculo-ventricular opening ; but otherwise the membrane was healthy. The valves were also sound. There was nothing remarkable in the left auricle ; its walls were perhaps rather thick. The muscular structure of the left ventricle was, throughout, greatly hypertrophied ; the walls being at least triple the natural thickness, and the columnæ carneæ of great size : there was a patch of opacity in one of the curtains of the mitral valve ; but, otherwise, the membrane was healthy, as was also the valve, which appeared efficiently to close the opening : the sigmoid valves were also healthy. The right ventricle contained a firm fibrinous clot : there was a smaller and less firm one in the left. The pulmonary artery healthy, and of moderate size. The aorta rather large ; being, at its commencement, larger than the pulmonary artery : it was slightly marked with atheromatous deposit in the ascending portion ; but this was more the case as the distance from the heart increased, and, at the same time, the elasticity of the vessel diminished. The coronary arteries were remarkably large and thick ; and there was a notable deposit, almost of a cartilaginous hardness, at the commencement of the left. The splenic artery was likewise slightly thickened ; and the renal arteries notably so. The radial artery was thick and gaping ; but retained, in some degree, its elasticity.

*Abdomen.*—There was a large quantity of limpid straw-coloured fluid in the peritoneal cavity. There were frequent deposits of lymph both in the walls of the abdomen and on the convolutions of the intestines. The alimentary canal, throughout, was much narrowed by contraction of the peritoneal membrane : this was more particularly the case with the stomach, the largest calibre of which was less than that of the colon. The great omentum was also contracted to a mere lamina upon the surface of the transverse colon ; and



the stomach and colon were closely united by the contraction of the same membrane. The spleen natural. The liver rather coarse, presenting very slight, if any, signs of obstruction to the return of the blood. The gall-bladder full. Mucous membrane of the stomach very rugous, as if puckered; slightly congested.

The tunics of the kidneys tore off with tolerable readiness, and exposed a pale, finely-granulated surface: when the kidney was cut into, it appeared of a dingy yellow, or rather dirty white, throughout; and, until closely observed, seemed a homogeneous substance. All traces of the cortical stricture seemed obliterated; and the tubular structure was very faintly visible. The left kidney weighed one and a half ounce; the right, two ounces. (Plate I.)

The following observations were made upon the blood and urine, by Dr. Rees:—

*Blood* drawn from the arm during life—crassamentum, buffed, and cupped.

•Composition of blood, as follows:—

|                              |               |
|------------------------------|---------------|
| Water . . . . .              | 835·85        |
| Solid matters of serum . . . | 82·54         |
| Fibrin and globules . . . .  | 81·61         |
|                              | <hr/> 1000·00 |

*Urine*, on the 25th of May, amounted to 18 ounces in twenty-four hours; and each ounce voided contained 5·2 grains of albumen.

In this case it is remarkable, that whilst the disease of the kidney had reached the very last stage of which this form of degeneration is susceptible, the disease of the heart was confined almost entirely to the left side; so that neither was there any disease of the right side of the heart which would have of itself produced venous obstruction; nor was its condition such as to afford evidence of any impediment to the pulmonary circulation, which would have produced the same result: and further, that the appearance of the liver presented no signs of any obstacle to the return of the blood.

CASE 4.

*Susceptibility of Diuresis — Exposure to Cold — Dyspnœa — Dropsy — Albuminous Urine — Incipient Gangrene of Lower Extremities — Death.*

GEORGE BECKLEY, aged 42: admitted July 6, 1842: a large-made man, of moderate height, who has lost the sight in his right eye, through an accident: has been engaged as a plumber &c. since the age of 14 years; up to which time, and since, he has never had a day's illness, with the exception of the present; and has invariably lived temperately, and at times has been deprived of regular food: is not married; and has never had syphilis or gonorrhœa, nor any blow on his loins. His general habit is to pass a large quantity of urine daily. In February last he was employed in going to and from Blackwall (living in the Kent Road). Crossing the water daily, he was frequently exposed to wet and cold, keeping his wet clothes on; and soon afterwards he observed shortness of breath, on any exertion, and on going up stairs, but had no cough, and was at times confined to the house; and, according to the change in the weather, has had exacerbations and remissions. This has been his state, observing an increase in the quantity, but no change in the quality, of his urine.

On the Thursday before admission, he observed his ankles to swell, and soon afterwards his legs, and in a day or two his scrotum; and found that he could not button his trowsers as usual. The dyspnœa has increased: his urine has been in less quantity; and since February he has been called up three or four times in the night to micturate, which was not the case before. For the last month he has noticed palpitation.

His countenance is distressed; and there is considerable dyspnœa: the chest is resonant on percussion anteriorly, and the respiratory murmur is rather loud: posteriorly, at the lower part, there was occasionally heard fine mucous crepitation with the inspiration, and there was some dullness on percussion: the heart's action is heard nearly all over the chest, and the second sound is more prolonged than natural, and both are laboured and sluggish: the pulse was 112: the legs very tense and swollen, and the scrotum

very œdematous : the skin was rather dry, and there was an erythematous redness on the inner part of both legs : passes about twenty-eight ounces of neutral urine, moderately coagulable by heat and nitric acid, of sp. gr. 1021 : the bowels are confined.

He was admitted on the 6th of July, and ordered to take 2 scruples of compound jalap powder directly, and to apply a spirituous lotion to the erythematous parts. The bowels were open three or four times ; and on the 7th he was ordered 5 gr. of the *pilulæ scillæ c̄ hydrarg.* every night ; and to take 30 minims of *spt. æth. nit.*, 8 minims of *tinct. digitalis*, and half-an-ounce of *liq. ammon. acet.* in camphor mixture, three times a-day. The lotion relieved the redness : the urine was rather increased in quantity, and continued of the same specific gravity. The bowels continued open ; the tongue moist, and rather white ; and he appeared in other respects better. The gums became tender on the 14th of July ; when the pills were omitted, as also the tincture of *digitalis*. The œdema of the legs then increased, the respiration became hurried, and he felt more uncomfortable, and perspired scarcely at all. On the 20th the bowels continued regular ; he had passed less urine, which was of sp. gr. 1022, and was moderately coagulable by heat and acid ; and the gums and mouth continued very sore. He was ordered, *decoct. scoparii*, with half a drachm each of *spt. armoraciæ comp.*, of *spt. æth. nit.*, and of *spt. juniperi comp.*, with a scruple of *acetas potassæ*, every six hours ; and to use the alum-and-myrrh gargle. There was more redness on the legs, which, in the course of a day or two, began to discharge serous fluid : starch was sprinkled over the part ; and 5 gr. of *pil. conii comp.*, and 5 gr. of *pil. scillæ comp.*, were given every night ; and the breathing being more embarrassed, a blister was applied to the anterior part of the chest. On the 25th, the pulse was small and feeble, and was gradually becoming weaker, the respiration more hurried, and accompanied with mucous rattles in the bronchi ; the skin cold and clammy ; and the voice very feeble. He died on the evening of the 26th, the *anasarca* continuing much the same.

INSPECTION, thirty-nine hours after death.—There was great œdema of the lower extremities, the posterior parts of the trunk, as well as of the left upper extremity, though but slightly of the right. The surface of the body was marked at various parts by dark patches of gangrene, which was more especially the case with the right thigh. The anterior part of the chest emaciated; abdomen distended by flatus, and marked by shades of commencing decomposition.

*Head.*—The tunica arachnoïdes shewed signs of inflammation; its two surfaces being, at various points, loosely connected by very thin filaments of fibrin: there was also a small quantity of fluid in its cavity; those portions which covered the sulci were opaque, and slightly elevated by fluid effused beneath them: the substance of the brain much softened: the carotids within the cranium thickened and gaping.

*Thorax.*—Each pleural cavity contained a large quantity of clear straw-coloured fluid, which on the right side floated the lung to a level with the fifth rib: a broad bridge of adhesion connected the middle lobe to the parietes. The left lung was retained in its position by interlacing bands of adhesion between it, the diaphragm, and the exterior surface of the pericardium: with the exception of these adhesions, the pleura was healthy: it was beautifully mottled by the dark pulmonary matter lying beneath it. The lungs were generally œdematous; anteriorly, and centrally, emphysematous; and the sections discovered spots of pulmonary apoplexy of different shades and colour. The mucous membrane of the pharynx much injected: epiglottis large and thin: the rima unobstructed: the chordæ vocales swollen and injected.

Pericardium apparently natural; but containing a considerable quantity of clear serum.

The heart was generally large, and its walls thickened throughout; which was more particularly the case with the left ventricle, of which the walls were double their natural thickness. The tricuspid valve appeared tolerably healthy: the columnæ carneæ very large: whilst the chordæ tendineæ, particularly those connected with the septum, were very short: the lining membrane of the right ventricle healthy: the opening of the coronary vein was very large, and the

valvular apparatus much developed; as was also the Eustachian valve. The left auricle was dilated, though not to the same extent as the right: its lining membrane healthy: the mitral valve was thickened at the edges, though in other respects it was healthy: lining membrane of the left ventricle healthy. The aorta was dilated a little above the sigmoids, and marked with spots of atheroma, which became more numerous as the vessel was traced through the abdomen.

The following measurements were made of the large air-passages and vessels, in inches:—

Circumference of trachea, immediately below the thyroid cartilage, 2·55.

|                                        |       |
|----------------------------------------|-------|
| Right auriculo-ventricular orifice . . | 5·63. |
| Left . . . . .                         | 5·7.  |
| Pulmonary artery . . . . .             | 3·75. |
| Aorta . . . . .                        | 3·9.  |

*Abdomen.*—The peritoneum contained but a very little fluid, which was of a dirty-brownish colour: the membrane retained its natural lustre: mucous membrane of intestines healthy, but pale: liver but little, if at all, enlarged; its section displayed, generally, a pale, myristicated appearance; though, in the anterior portion, spots of a dark colour were dispersed through the structure. Gall-bladder moderately distended: pleura natural: renal arteries thickened and gaping: mesenteric veins distended.

Both kidneys were large: the tunics peeled off readily, and exposed a lobulated surface, finely marbled with specks of a palish-orange upon a red ground: this same marbling was also observed when an incision was made into the organ; the specks looking much like the acini of the liver, and suggesting the idea of there being enlarged Malpighian bodies: the cortical structure was apparently hyperæmic throughout; so that the tubular cones were less conspicuous than ordinary. The lining membrane of the pelvis also appeared congested. An attempt was made to inject one kidney; but the injection did not run. (Plates V. and VI.)

CASE 5.

WILLIAM CURTIN, aged 56; a sailor, of leucophlegmatic appearance, with light hair and eyes, and of full habit: has drunk freely, chiefly of rum: has lived well, and always enjoyed good health: had measles and small-pox when a child. In 1820, when in the Mediterranean, he had inflammation of the liver, for which he was salivated, and ptyalism was then very quickly induced: he has always made an abundance of water; and micturition has always been frequent in the night: and has for many years been subject to palpitation and dyspnœa, to which many of his family are liable. Since the hepatitis, he was well till last Christmas, when he was water-logged in the Bay of Biscay, returning from America, when he suffered much from exposure and want of food, and was wet-through for thirty-three days. He used to perspire freely, and was often exposed to chills when perspiring: he has twice received a blow in his loins. About the 20th of January. Three weeks after being exposed, as above, in the Bay of Biscay, he observed his ancles, feet, wrists, and hands, to be swollen and pale, which condition left him in a few days. On the 26th of January he came into the hospital, suffering with bronchitis; the œdema having re-appeared in the feet and hands, and extended to his legs, arms, and surface generally: his urine was then coagulable. He took acetate of ammonia with antimonial wine, and was purged; and left the hospital much relieved of the bronchitis, and quite free from anasarca: but after his indulging freely in rum, the symptoms returned; and on April 6, he was again admitted, suffering from general anasarca, and bronchitis of the small tubes, with emphysema; a *bruit-de-soufflet* also was audible just below the left nipple, synchronous with the pulse. He had perspired at times freely till this second admission, but has not done so since: his urine was then very coagulable. He took acetate of ammonia with antimonial wine and pil. Doveri, and an occasional purgative when necessary. About April 13th he was attacked with bilious cholera; and after its removal by antacid absorbents with opium, he had hæmoptysis, with violent cough, and profuse sanguineous mucous expectoration: this left him in about a week, a blister having been applied between his shoulders.

He was transferred to Job Ward this day, May 11th; and at present his eyes look pale and watery, and he is generally leucophlegmatic: his vision is impaired from the effects of gunpowder twenty years ago, but is as good as it has been since that occurrence: hearing, smell, and taste, unimpaired. Sensation natural, as well as motion; the œdema involves the whole surface, excepting the face, head, neck, and upper parts of the thorax; and he maintains the semi-erect position. Fluctuation is indistinct in the abdomen; the œdema of the parietes being very great. There is no evidence of venous obstruction: the heart's action is regular; the impulse forcible; with some roughness, on first sound, over aortic valves, and occasional *bruit* below left nipple: pulse rather splashing and sharp, incompressible, 72: radial artery rather tortuous: tongue moist and red, with a slight yellow fur: bowels confined, unless acted on by medicine. The chest is resonant where the œdema is not very great: occasional sonorous and sibilant rattles are heard: the expiratory murmur is prolonged and labouring: respirations 18 in the minute: slight dyspnœa, increased on assuming the recumbent position: there is no vertigo, drowsiness, or pain in his head; but he has been watchful at night: the surface is cool, but dry: appetite very good; but he is thirsty. The œdema of the penis and scrotum has been aggravated by a scald during the last few days; since which, his urine is much diminished in quantity; but before this it was very abundant. It is acid, pale, of specific gravity 1010, and becoming almost gelatinous on exposure to heat, and on the addition of nitric acid.

He was ordered, on May the 12th, to take one-sixth of a grain of elaterium, and two scruples of compound jalap-powder every four hours, till the bowels were relaxed; and to take camphor-mixture with fourteen grains of sesquicarbonate of ammonia in a state of effervescence, with a scruple of citric acid; and to have milk diet. He was much relieved by the free action of the elaterium and jalap, and the anasarcaous tension was less, the scrotum and penis being very œdematous: micturated four times during the night, and passed about forty ounces in twenty-four hours, at frequent intervals. On the 14th, the bowels were confined; and there

was more dyspnœa, and tension of integuments and abdomen: the elaterium was ordered to be repeated; which acted very freely three times, with relief to the symptoms; but the bowels were not again open till the 16th, when a dose of the house-medicine was given, which operated several times. The dyspnœa continued urgent, with the same stethoscopic signs; but so great was the œdema, that he could scarcely move in bed. The quantity and quality of the urine remained the same; but was passed with less difficulty, as the œdema of the penis was less: he was troubled during the night with terrifying dreams, with very frequent calls to micturate, and pain in the head. The jugulars were turgid and pulsating on the 17th; and his aspect and manner were dull and heavy: the pulse 86, still incompressible and splashing. He continued to pass restless nights, with very frequent calls to micturate: the countenance was haggard and anxious, though heavy: great dyspnœa, and general distress.

On the 19th, his pulse being 96, softer, he was ordered twenty minims of *spt. æth. sulph. comp.* with each dose of the mixture; and the bowels being confined, two scruples of compound jalap-powder to be taken at once: after the operation of this, he was relieved, but could scarcely move; for so great was the anasarca, that he was compelled to roll off the bed to get to the night-stool: the respiration was also much relieved: the urine passed in twenty-four hours was forty ounces, of specific gravity 1011, of the same re-action.

Seven or eight acupunctures were made in the upper part of the calf of each leg; and from these flowed a large quantity of serous fluid for three or four days, with relief to the tension. House-medicine was given, to keep the bowels open, without which his general fulness and uneasiness were increased: the respirations continued eighteen in the minute, with prolonged wheezing expiration; and the pain in the head continued. On the 22d, he was ordered two eggs, the appetite being indifferent; and on the following day, having previously expectorated some sanguineous mucus of a florid hue, he was suddenly seized with severe orthopnœa, and continued to expectorate bloody mucus of a florid hue: the pulse was 100, softer, and he complained of great fulness at the top of the sternum: the bowels were



confined. He was ordered a dose of house-medicine; and a sinapism was applied over the sternum, followed by the application of the acetum cantharidis; and afterward a blister was applied, and a drachm of spt. æth. nitrosi, and six drachms of liq. amm. acet. were given in camphor-mixture every four hours. He passed about forty ounces of acid urine in twenty-four hours, of the same specific gravity, and the same reaction.

On the following day, the orthopnoea was diminished; but respiration was very laborious, with prolonged wheezing expiration; and the expectoration of florid sanguineous mucus continued. The bowels had been twice open, and the blister had risen well: the pulse was 96, hard and splashing. He was bled to ten ounces, with immediate relief to the urgency of the symptoms, which had returned with cold perspirations and sense of suffocation; and the pulse, which before the bleeding was sharp, hard, and fluttering, became much softer, and he was much easier and got a little sleep: the countenance was thinner, dejected, and anxious: the urine was, on the 25th, only eighteen ounces, and of specific gravity of 1015. He was ordered to take the mucilaginous mixture, with fifteen minims of tinct. lobeliæ, and tinct. benzoin. comp., with five minims of ipecac. wine, every four hours.

On the 26th the general tension of the surface was diminished, and the œdema of the scrotum much less: the pulse was 106, much softer and less splashing, and the mitral bruit was very distinct: the acupunctures were sore, and rather inflamed; and the expectoration continued sanguineous: the bowels were confined. Haust. sennæ was given, a spirituous lotion applied to the acupunctures, and the lobelia omitted; and half a drachm of spt. æth. nit. substituted in the mixture: he was ordered to have egg and wine. He continued to get weaker: the respirations were more hurried, being thirty-four in the minute, of a gurgling character, from the mucus collected in the bronchi: the sonorous sibilant and mucous rattles, which had been heard throughout, more or less in the chest, now obscured the sounds of the heart: the tongue became dry and brown, and he was very heavy and dozy: complained of pain in the head, and a sensation of losing his senses, with pains also in his legs.

On the 28th, the urine was diminished to fourteen ounces, alkaline, and of a fishy odour, and specific gravity 1015, and less coagulable, especially by heat: the jugular pulsated, and seemed to allow of regurgitation. The effervescing acetate of ammonia with excess of alkali was prescribed, with half a drachm of spt. æth. nit. every six hours. On the following day, he lay on his back, breathing laboriously, unable to articulate distinctly, and almost unable to move his limbs: pulse was 100, small, feeble: bowels three or four times open: œdema more doughy and less tense: was unable to expectorate; and the respiration was gurgling and difficult: his egg and wine were given at his own request; and after a moaning, restless night, he, without the occurrence of any fresh symptoms, died exhausted on the following morning, having been sensible to the last.

SECTIO CADAVERIS, four hours after death.—The body short: all parts much distended with serum.

The dura mater was very adherent to the cranium. The arachnoid was pretty clear. There was a considerable quantity of water between the arachnoid and pia mater. The cerebral arteries were slightly thickened. The brain was small and pale, but otherwise presented nothing remarkable. The ventricles contained from 4 to 6 drachms of clear fluid.

Each pleura contained nearly one pint of clear and palish fluid. The lungs, which were of moderate fulness, seemed nowhere devoid of air: the left inferior lobe seemed as if compressed, and of a lightish red: in other parts, œdema, watery lobular pneumonia, and slight turgescence, were observable. There was some emphysema and dilatation of the bronchial tubes. All the mucous surfaces of the larynx, above the sacs of Galen, tumid from œdema: the left bronchus a little flattened; the lining membrane of the tubes, turgid; and the secretion abundant and frothy. The pericardium contained about two ounces of clear and palish fluid.

The heart generally was much enlarged: the right side was the least affected; whilst the left ventricle was very hick and large, and the left auricle spacious and wide. The lining membrane of the left ventricle was cloudy: all the muscular substance was pale and firmly contracted, but

perhaps too lacerable. There were very firm, large, red coagula in every cavity, and in both arteries and in the systemic veins; the coagula in the arteries impressed by the sigmoid valves. There were no clots in the pulmonary veins. The mitral orifice admitted fully three fingers; and its valve was nearly perfect. The tricuspid orifice was wide, and the valve apparently admitted of regurgitation when the ventricle was distended. The aortic valves were large and thin; their surfaces of contact perforated; and the edges of the same partially thickened. The aorta was large, thick, opaquish, and uneven; and the descending aorta much affected with incipient atheroma, which increased with the distance from the heart. The branches of the aorta were similarly affected: the coronaries but slightly so. The pulmonary artery healthy.

The following are the measurements of the large air-passages, blood-vessels, &c. in inches:—

*Trachea*: Length of inferior vocal chord . . . . . 0·8  
Circumference below cricoid cartilage . . . . . 2·7

*Aorta*: The circumference immediately above sigmoid valves, 3·5  
. . . . . one inch above the sigmoid valves, 3·25

*Pulmonary Artery*:

The circumference, immediately above sigmoid valves, 2·9  
The circumference, one inch above sigmoid valves 3·2

The peritoneum contained a little rather milky fluid: its surface was clear. The liver was rather coarse, dark, and mottled, firm, and perhaps rather large: the lobules seemed most hypertrophic. The gall-bladder was very œdematous: its contents of a palish orange; with black rugged grains of concretion, of the size of a sweet-pea. The spleen was somewhat enlarged, firm, fleshy, lacerable, and watery. The lining of the œsophagus and cardiac portion of the stomach was considerably dissolved: that of the left half of the stomach was unaffected. The lining membrane of the stomach was red; that of the small intestines slightly and very minutely injected; that of the colon very much so: the contents of the former very bilious; that of the latter abundant and fœculent.

The abdominal arteries were large, thick, rigid, tortuous,

and whitish. The radial arteries were in the same condition, excepting that they were straight.

Each kidney weighed  $6\frac{1}{2}$  ounces: they were contracted and firm: their tunics thin, and raised by cysts of lightish fluid. These cysts were about the size of a hazel-nut; and there were from twelve to eighteen in each kidney: the surfaces were marked by large and flat granules: the cortex of each was of a pale brown, dull, and freely granulated. (Plates I<sup>a</sup>. and II.)

The following is the account of the examination of the blood and urine by Dr. Rees:—

*Blood*.—Crassamentum, slightly buffed: serum not milky.

*Analysis:*

|                                                            |        |
|------------------------------------------------------------|--------|
| Water . . . . .                                            | 853·11 |
| Solid matters of serum: Albumen, extractives, and salts, . | 81·28  |
| Fibrin and globules . . . . .                              | 65·61  |
|                                                            | <hr/>  |
|                                                            | 1000   |

The specific gravity of the serum was 1023.

It contained, Urea . . . 0·5 gr. per 1000 gr.  
Alkaline salts, 6·0 . . . . .

*Urine*.—On the 25th of May, equalled 18 ounces in twenty-four hours, and each ounce voided contained 5·2 grains of albumen.

The small size of the pulmonary artery, compared with that of the aorta, renders it highly probable that obstruction to the circulation on the right side of the heart existed from a very early period—a circumstance which would no doubt have tended to produce congestion of the kidneys, and consequently have forwarded the disorganization which ultimately took place in those organs.

CASE 6.

*Pulmonary Obstruction—Albuminous Urine—Congested Liver and Kidneys*

SARAH ANDREWS, aged 45: admitted May 25, 1842: a washer-woman: of large frame, dark complexion: always resided in London, exposed to constant variations of temperature; and has partaken daily, for years past, of gin and porter.

She has never, to her knowledge, had hæmorrhage, rheumatism, gout, scarlet fever, syphilis, fits, or paralysis. Her health was always good until last winter twelvemonth, when she was laid up three weeks, and cupped from the loins, for an injury from slipping upon some ice, and falling with the back upon a curb-stone. She states, that at this time there was no unusual appearance in the urine, and that she quite recovered from the fall.

About a year ago she began to get out of health gradually; the legs became weak and the ancles swelled, especially towards evening; and she had attacks of pain in both lumbar regions, passing round the abdomen; often succeeded by sickness and vomiting. The urine was generally passed several times in the night; and two common-sized utensils-full were frequently voided in the twenty-four hours: at this time the urine was dark-coloured. She continued to work and expose herself until seven months ago, when she began to suffer from cough and dyspnœa: she was then getting much weaker, and the legs were increasing in size. Four months ago she first observed that the belly was swelling: both it and the legs have continued to increase in size until five weeks ago, when the skin of the latter spontaneously gave way, and large quantities of fluid oozed out, by which their size was reduced. She has not perspired throughout her illness; and latterly the urine has been very scanty. Has had no vertigo, cramps, spasmodic twitches, or imperfection of sight or hearing.

The catamenia have been absent five or six years.

At present the face is considerably swelled and suffused, of a dingy purple colour, and expressive of extreme anxiety: the eyes are watery: alæ of nose expanded: decubitus on the back: intellectual and sensorial functions good: whole surface dry, and rather hot: legs and thighs about twice their natural size, scaly and rough, presenting, at the posterior and inner surface, a dusky erythematous blush, and one or two superficial ulcerations, from which fluid slowly oozes: upper extremities free from swelling: respiration 34, laboured, chiefly thoracic: jugulars turgid, but not visibly pulsating: pulse 104, regular, large, with some degree of hardness: the radial artery felt to roll beneath the finger: tongue clean,

injected at the tip and sides: conjunctivæ tinged with bile  
appetite good: thirst.

Extent of præcordial dulness increased: impulse natural:  
heart's sounds seem distant: nothing abnormal heard; but  
the loud bronchial sounds preclude nice examination: uni-  
versal, low, sonorous, cooing, and occasional mucous rattles,  
pervade the chest anteriorly.

Abdomen uniformly distended: fluctuation very evident:  
resonance on percussion at various parts, anteriorly and  
laterally.

Urine densely charged with nut-brown lithates; sp. gr. 1032:  
scanty (quantity not known): heat clears it, and throws down  
a thick cloud: nitric acid renders it more turbid, and deepens  
the colour.

She was ordered *jul. ammon. acet.* with 30 minims of anti-  
monial wine, and 20 of spirits of nitric æther, every six hours;  
to use a spirit lotion to the legs; and to take two scruples of  
compound jalap powder immediately.

On the following day, the redness and tenderness of the  
legs were much diminished by the lotion; and the powder had  
produced four dark bilious motions: but as the dyspnœa was  
unabated, a blister was applied to the chest, and she was  
ordered to take the following pill every night:—*Pulv. scillæ*  
*gr. i. ext. hyosc. gr. ij. hyd. ē cretâ gr. ij.*; and to continue  
the use of the mixture.

On the 28th, the symptoms were milder: dyspnœa less:  
skin hot, but slightly moist: pulse softer: but she was very  
weak, and was allowed four ounces of gin daily. The urine  
was of sp. gr. 1027, scanty in quantity.

*June 2.* The dyspnœa and cough were much increased:  
expectoration viscid and scanty: respiration, 38: pulse 92,  
regular, but unequal: urine scanty, abounding in lithates:  
the sp. gr. on the three days preceding were respectively,  
1030, 1033, 1020. On the last day, the urine was increased  
in quantity, and the deposits, both of albumen and lithates,  
were reduced. She was ordered on the 30th to take the  
acetate of potash, with stimulating diuretics, and to continue  
the use of the pill.

Until the 10th, the progress was favourable; the nights

were more tranquil; the thoracic symptoms less severe; the skin became more perspirable; the urine increased in quantity; deposits of lithates and albumen lessened; and on the 6th, sp. gr. 1022.

The thoracic symptoms gradually increased in severity; the face became congested; the night's rest was disturbed; and the bowels were confined.

On the 15th, it was noted that the gums were slightly affected with mercury: the perspirable state of the skin however continued. The urine was now free from deposit either of lithates or albumen. On the 16th, on which the thoracic symptoms were much aggravated, the deposits reappeared: the sp. gr. was 1027. The mercury was omitted: the state of the bowels and the other symptoms were relieved by elaterium, the mucilaginous mixture with ipecacuanha-wine and the compound squill pill, and a repetition of the blister to the chest.

From the 20th to the 26th the symptoms were much mitigated; but the albuminous deposit in the urine returned: the quantity of the secretion generally increased; and its sp. gr. varied from 1025 to 1030.

On the 26th, it was noted that during the night she had a rigor, followed by anxiety and livor of countenance, excessive dyspnoea, small frequent pulse, clamminess of skin, without the least symptoms of impaired sense or intellect. She was ordered to take a mixture with squill and nitric æther, and a blister was applied to the chest: but the oppression of the breath gradually increased till her death.

**SECTIO CADAVERIS**, thirty hours after death.—Body large and bulky: generally anasarcaous: irregular lividity, as if from advanced decomposition: several large blebs, containing dark-coloured serum.

Dura mater natural: the arachnoid was opaque in most parts, from maceration; but here and there were patches of greater opacity, probably the result of inflammation: underneath the arachnoid was some effusion: the middle meningeal arteries were thickened: the other arteries presented no obvious marks of disease, but were large, and contained

black blood: the brain was small, especially anteriorly: it was soft throughout; but this was probably the effect of decomposition.

The left pleura contained about half a pint of dark-coloured serum: there were moderately firm adhesions inferiorly: and the pleura pulmonalis, when torn from that of the parietes, presented large fibrinous villi: and the upper and middle lobe was invested by false membrane. The right pleura was free, and contained about half a pint of serum: the lungs did not collapse; and were œdematous throughout, with extensive consolidation in the middle and lower lobes: there was no emphysema: some of the bronchial tubes appeared dilated, but to no very great extent. Owing to the advanced state of decomposition, it was not possible to speak accurately of the state of the mucous membrane.

The pericardium was dull; and on the attached portion was a patch of opaque thickening anteriorly, near the apex: it contained from four to five ounces of fluid.

There was a large and moderately firm white coagulum in the right ventricle: the left contained dark fluid blood, with some very loose dark coagula: the heart generally was large, but the left ventricle particularly so: the walls of the right ventricle were thin, and its cavity large: the walls of the left very thick, and its cavity likewise large: the tricuspid valve was, upon the whole, healthy: the anterior curtain was, perhaps, in parts thickened and puckered: the posterior one rather scanty: the mitral thickened, but apparently not a bad valve: the sigmoids on both sides healthy: the mouths of the coronary arteries were gaping; and there was some atheroma just beyond them: the aorta was rather dilated in the arch; and there was some atheroma in the descending portion.

The following measurements were made of the principal air-passages, vessels, &c. :—

|                                       |                |        |
|---------------------------------------|----------------|--------|
| Trachea, just below cricoid cartilage | . . . . . 2    | inches |
| Tricuspid orifice . . . . .           | . . . . . 5.15 | ...    |
| Mitral . . . . .                      | . . . . . 4.3  | ...    |
| Pulmonary artery, just above sigmoids | . . . . . 3.75 | ...    |
| Aortic . . . . . ditto                | . . . . . 2.65 | ...    |

The surface of the peritoneum appeared dull; and there



were some loose fibrinous deposits slightly adherent to it: the cavity much dilated with fluid: the liver was myristicated, and beginning to contract: spleen firm: intestinal coats partially ecchymosed, and œdematous throughout.

The kidneys each weighed  $5\frac{1}{2}$  ounces: there were several urinous cysts: the removal of the tunics exposed a coarse granular structure; which was also seen when an incision was made: contraction was apparently commencing: there was much congestion; but, owing to the advanced state of decomposition, the colour was probably deceptive.

We have, in this instance, general symptoms of pulmonary obstruction during life; with a deposit of lithates in the urine, which, whilst it is generally indicative of some derangement in the liver, is rarely found in those cases in which disorganisation of the kidneys is far advanced: and, after death, the state of the lungs, of the right heart, and of the liver, afforded sufficient evidence of such obstruction; whereas the disease in the kidneys was much less advanced than in the preceding case.

#### CASE 7.

*Bronchitis of some standing—Death—with Enlargement of Right Heart, and Congestive Disease of Liver and Kidneys.*

MICHAEL BROWN, a sailor, aged 35, was admitted May 18th: he had generally enjoyed good health, with the exception of frequent cough. At the time of his admission he had urgent dyspnœa, with cough, and rather scanty expectoration tinged with blood: his pulse was small and feeble: heart's action irregular: there was anasarca of the lower extremities, with some peritoneal effusion: urine scanty, depositing lithates; and cleared at first, but afterwards becoming turbid by heat; and remaining turbid with nitric acid: bowels confined. He was ordered some hyd.  $\bar{c}$  cretâ; to be followed by castor-oil.

The night after his admission, was unusually cold; and on the following day the dyspnœa was more urgent: his pulse very feeble, and his face and extremities livid: there were fine mucous rattles over the greater part of the chest; and a considerable quantity of blood in the expectoration. He was

ordered some nit. æth. and squills with ammonia, and a blister was applied to his chest; and on the following day he was much relieved. He continued to improve; and was able to walk about the ward, till the 10th of June, when his more urgent symptoms again returned, and the anasarca again began to increase, and evident signs of pleuritic effusion supervened. He died on the 25th of July.

The urine was scanty during the whole time of his being in the hospital: after the first few days it almost entirely ceased to be albuminous.

SECTIO CADAVERIS, July 27, 1842, about forty-eight hours after death.—Body large and pale, with congestion in the depending parts: œdema general, but most on the right side: there was great effusion in the left pleura, where there were two very long bridges of false membrane: there was complete adhesion of the surfaces of the right pleura: the mucous membrane of the pharynx and larynx was much congested: the chordæ vocales were œdematous; but the opening of the rima was free, and the epiglottis thin: the mucous membrane of the trachea was much injected, but not œdematous.

The right lung was feebly crepitant throughout, with traces of old pneumonia. In the lower part of the superior lobe of the left lung were several masses of pulmonary apoplexy, in different stages: the lower lobe was devoid of air, from pressure.

The bronchial glands were large and black: the bronchial membrane much congested: there were some dilatations of the smaller tubes: the pericardium contained a considerable quantity of fluid: on its surface were a few grains of adventitious deposit; and there were white patches on the anterior surfaces of the right auricle and ventricle.

The right auricle large and thin: the muscoli pectinati large: the opening of the coronary vein would admit the tip of the thumb.

The right ventricle large and thick: columnæ carneæ very much developed.

The left auricle large, and rather thick.

The left ventricle of moderate capacity, and thick; but in a less degree than the right.

There was considerable ossific deposit in the lining membrane of the right auricle: that of all the other cavities was healthy.

All the cavities contained large, loose, dark coagula; but there was also a tolerable firm fibrinous clot in the right ventricle.

The curtains of the tricuspid valve thickened: the pulmonary sigmoid valves healthy: the left auriculo-ventricular orifice small and contracted: the mitral valve thickened, and cartilaginous, with bony deposit on its auricular surface: aortal sigmoids healthy: aorta rather dilated, with patches of its lining membrane affected with acute inflammation.

|                                              |              |
|----------------------------------------------|--------------|
| Circumference of trachea at first ring . . . | 2· 4 inches. |
| Circumference of pulmonary artery . . .      | 3· 3 ...     |
| Right auriculo-ventricular opening . . .     | 5·25 ...     |
| Aorta . . . . .                              | 3· 0 ...     |
| Left auriculo-ventricular opening . . .      | 2·05 ...     |

The cortical structure of the kidneys was coarse, and slightly granular: mucous membrane of pelvis much congested. (See Plate VIII. Fig. 1.)

The right kidney weighed five ounces; the left, six.

The liver was hard, not much enlarged, and was in an advanced stage of nutmeg degeneration: there was considerable peritoneal effusion.

The two cases, in which the complication consisted of affection of the encephalon, illustrate forcibly the danger of the sudden invasion of cerebral symptoms; which always exist where albumen is present in the urine, in any quantity, however small, accompanied with a diminution in the specific gravity of that secretion; a danger which is not diminished by the absence or the subsidence of any dropsical swelling: for, in the former case, it is worthy of notice, that the quantity of albumen in the urine was but small throughout, and that the dropsical effusion had nearly subsided before the more alarming symptoms manifested themselves; and in the second case (that of Henry Stanley), the anasarca was much diminished, and the urine improved in every respect, except its specific gravity, just at the time that the fatal

attack occurred. Indeed, I think that, from a careful observation of no very limited number of cases of this disease, I may pretty confidently affirm that in those cases of albuminous urine, in which there is little or no dropsical swelling, with but a moderate or even scanty deposit of albumen, the skin being at the same time moist and perspirable, but the urine defective in its solid contents—as evinced by its light specific gravity, and the absence of urinous odour upon the application of heat or nitric acid—there is more especial danger of the sudden invasion of disease in the brain or its membranes. In one or two very-well-marked cases of this kind, almost the only dropsical effusion has been a sort of watery chemosis, produced, as I believe, by anasarca of the cellular membrane under the conjunctiva.

In Case 3 (Charles Scott), the cerebral symptoms were of a different character from those in the preceding cases, being obviously the result of an apoplectic clot in the very part of the brain in which the situation of the paralysis would have led us to expect it. This extravasation appears to have been the result of disease in the arteries of the brain, as well, perhaps, as of the hypertrophy of the left ventricle of the heart. The origin, however, of this hypertrophy is a matter of some difficulty, as well as of some importance, as the question has been raised; and it is certainly one deserving of grave consideration—Whether, in cases of this kind, where disease of the heart co-exists with disease of the kidney (a coincidence which is observed so often as to render it in the highest degree probable that the two lesions bear some necessary connection with each other) the former or the latter is to be regarded as the primary affection—whether, in fact, the renal disease is any thing more than the result of congestion produced by mechanical obstruction—or whether the disease of the heart can be in any way shewn to be the result of that of the kidney? Upon this question, Cases 3, 4, 5, 6, and 7, tend to throw considerable light.

To begin, then, with Case 3;—and let us, first of all, endeavour to reconcile it with the former hypothesis. The hypertrophy of the left ventricle, then, was notable, and its injecting force must have been excessive: there is, however, much difficulty in accounting for this hypertrophy, as there

was no valvular disease; unless we refer it to the morbid changes which had taken place in the arteries, and which may certainly be regarded as a real and a sufficient cause for the phenomenon: for it must be obvious that the disease of the arteries was not produced by the violence which might have been done to their lining membranes by the too-powerful ventricles; since, in the arch of the aorta, where such violence would have been the greatest, the injury was less than in the descending portion, where the force of the heart's action must have been far less.

According to this hypothesis, then, the arterial derangement must have been the primary lesion; which, by the impediment it offered to the free passage of the blood, gave rise to hypertrophy of the left ventricle, which, in its turn, by its too-powerful injecting force, caused a congestion of the kidneys, which led to their ultimate disorganization. It need hardly be remarked, that there is a contradiction involved in the very terms of the explanation: but further than this there is the difficulty of explaining why the kidneys should have suffered so much, whilst the liver, which is generally the first organ to be affected by disease of the heart, should have escaped; and, also, of accounting for disease of the arteries, which there is every reason to believe is a rare affection, when occurring idiopathically.

Let us now assume, that the disease of the kidney was the primary affection: and in so doing, we may observe that we are not met *in limine* by the same difficulty which we had to encounter on the former hypothesis; for although to assume that the kidneys are often primarily affected with this disease would be, in some measure, begging the question, yet numberless analogies may be drawn from other secreting organs, to shew that over-stimulation may give rise to hyperæmia and subsequent disorganization: and that the kidneys were so stimulated in this case, is rendered highly probable, from the history of the invasion of the disease, as well as the previous habits of the patient. It is also ascertained that changes were produced in the condition both of the secretion of the kidneys and of the blood; the former being deficient in some of its natural solid contents, which were found to exist in excess in the blood; whilst the latter fluid was

deficient in an important solid ingredient, which was being continually abstracted by the kidneys; so that there was a two-fold change produced in the latter fluid; namely, the presence of an irritating substance, which it is the office of the kidneys in health to remove; and also the absence of a substance, which, independently of other important purposes in the animal economy, gives to the blood a viscosity which (according to the observations of Magendie) renders it more easy of transmission through the capillary vessels. We have, then, a cause sufficient to account for the disease in the arterial tunics, whereby the circulation in the larger vessels must be impeded; as well as a further obstacle to the transmission of the blood, resulting from the change in the blood itself: both of which circumstances must have co-operated in producing the hypertrophy of the left ventricle. It cannot then, I think, be doubted, that the latter hypothesis accounts for the phenomena in this instance more readily than the former.

The same line of reasoning, with very little alteration, applies to Cases 4 and 5: though perhaps, in the latter, there might be some suspicion of disease in the chest giving rise to venous congestion in some of the abdominal viscera, and, amongst others, in the kidneys, although not to a sufficient extent to account for the change which those organs had undergone.

In Case 4, indeed, there had been cough and dyspnoea for some time, before any dropsical swelling manifested itself: but although it is by no means improbable, from the history of the case, that bronchitis existed, yet it is now so well ascertained that renal disease may exist without any dropsical swelling, and also that, when it does exist, it is so uncertain in its situation, that we are not justified by its absence in assuming that the kidneys were sound, or even that disease in those organs might not have existed to an extent capable of producing œdema of the lungs: whereas the copious diuresis which existed for some time previously would be sufficient to lead us to believe that the kidneys had been for a long time in a state of over-activity—a belief which is most fully confirmed by the advanced state of disorganization in which these organs were found after death.

In Case 5, again, we have evidence of a still greater amount of obstructive disease in the lungs and heart, though the left side of the latter organ was principally affected; so that, although there existed a cause for venous congestion in the abdominal viscera, and, amongst the rest, in the kidneys, it was not sufficient to account for the extent of degeneration which these organs had undergone.

In Case 6, again, we have a still greater amount of obstruction to the return of the venous blood; and, with it, considerable disease of the kidney, which, however, was principally of a congestive character. But it is in Case 7 that we find the causes of venous obstruction in their fullest extent; there being great dilatation and hypertrophy of the right ventricle, owing to the impediment to the pulmonary circulation, caused by the narrowing of the left auriculo-ventricular opening on the right side of the heart: yet here the disease in the kidney was less advanced than in any of the preceding cases, but that disease was of a congestive character, and during life the urine contained a scarcely appreciable quantity of albumen.

The five last cases, in fact, present a series in which the renal disease becomes less and less, whilst the thoracic disease becomes greater and greater: the former affection, however, assuming more of the congestive character, as we approach the close of the series.

We are then, I think, justified in concluding, that although disease in the heart or lungs may, by the impediment which it causes to the return of blood through the veins, give rise to congestion in the kidneys in common with other organs in the abdomen, and thereby derange their functions, and in some cases lead to their ultimate disorganization, yet, as such disease was the least in those cases where the renal disease was the most advanced, and the converse, we are not to conclude that such disease in the chest is the universal or even frequent cause of the true Renal Disease; and that we must look elsewhere for the seat of the primary lesion in this formidable malady.

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In the case which follows, we have an interesting example of extensive disease of the heart, coincident with a remark-

able disease of the kidney; although the inspection could not, from the period at which it was performed, be made with sufficient accuracy to enable us to say which was the primary lesion.

## CASE 8.

*Exposure to Heats and Chills—Cough, Dyspnœa, and Palpitation—Albuminous Urine—General Dropsy—Purpura—Death.*

JOHN WYNN, aged 25, a paper-maker, residing in Kent: single; with light eyes, fair complexion, and brown hair; of spare frame, and middling stature: has drunk freely at times, chiefly of beer, but occasionally of spirits, and has not led a very regular life. Had syphilis four years ago; for which he took mercury, and was very speedily salivated: had measles and small-pox when quite a child: had intermittent fever for three or four months; and has been subject to rheumatic pains in his left elbow and shoulder: has had shortness of breath, with palpitation and cough, for six months: never, to his knowledge, had a blow in the loins. In his employment, which is amongst steam and over hot water, he is often exposed to chills and draughts. Since his illness, during the last three or four months, has had frequent nocturnal calls to micturition, which was not noticed before: has, till within the last year, been subject to severe epistaxis, lasting often for half-an-hour, and very profuse.

He was admitted into Naaman Ward on 20th April, suffering from cough, dyspnœa, and palpitation, with slight œdema of the feet and ancles, as well as of the thighs and abdomen: the latter he had observed for three or four weeks, and attributed it to flatus: and his urine was found coagulable. He has been taking saline mixture, with antimonial-wine and tinct. of hyosc. and digitalis, with occasional doses of compound jalap powder; and has been subject to partial perspirations, having previously perspired profusely during the night.

He was transferred to Job Ward on May 13, when his countenance was rather bloated and waxy-looking, with slight colour in the cheeks: the conjunctivæ pearly, and lips somewhat anæmial: tongue clean and moist, indented by the teeth: he is very thirsty: bowels confined, unless aperients are exhibited: the chest resonant: respiration



very distinct on the right side, with frequent *râle sonore*: the pulse is 86, rather thrilling, but weak, and occasionally intermittent: *fremissement* is felt over the heart; and the præcordial dulness is rather more extensive than normal: the heart's action is somewhat heaving; the chest rising with each impulse: this appears most considerable on the right side of the heart: a *bruit-de-soufflet* is heard over the whole surface, extending also to the right side, and is audible all round the chest and between the scapulæ; and is most obvious over the situation of the mitral and aortic valves, and involves both the first and second sound: the second sound, however, is comparatively indistinct: the beat is occasionally intermittent: there is slight cough, and mucous frothy expectoration: the saliva is acid: respirations 28 in the minute: the urine is pale, copious, of sp. gr. 1013, acid; effervescing on addition of nitric acid, becoming opalescent, and then depositing flocculi; on exposure to heat, becoming opalescent, and depositing flocculi. He was ordered low diet, and to take mist. salina ter die, and five grains of pil. scillæ c̄ hydrarg. every night, and two scruples of pulv. jalap. comp. every other morning; and a blister was applied over the præcordial region. There is now no œdema or ascites observable. The heart's action became rather more quiet and regular, and the pulse softer and more regular; but continued rather intermittent and sharp: and on the 19th, the expectoration was mucous, and with a rusty tinge; the bowels were open freely; and the pulse was irregular, 90, rather jerking. He was ordered mist. mucilaginosâ, with 20 minims of tinct. hyosc., and half a drachm of sp. æth. nitrici, three times a-day; and the pills were continued: the gums, however, were slightly tender: micturates twice during the night; and perspires slightly occasionally.

On the 19th, gums being very sore, the pulse 96, regular, compressible, but thrilling; the urine about forty ounces in twenty-four hours, sp. gr. 1014, and still slightly coagulable; he was ordered pil. scillæ comp. gr. v. ext. hyosc. gr. v. and camphor. gr. i. every night, and the mixture was repeated; and, as the gums continued very sore, an alum-gargle was used: on the 23d they were much better, and the salivary secretion diminished: the heart's impulse was diminished; and the

*bruit de soufflet* was heard very distinctly over the aortic and mitral valves, and almost confined to that situation; but the second sound was very much masked by the *bruit* which is on the first sound: cough and expectoration were slight, and sonorous rattles were heard in parts of both lungs: bowels were confined, and a senna-draught was given in the morning: respiration continued hurried, 32 in the minute.

On May 24, during the night, he had several ineffectual calls to stool, with tenesmus and tormina; and in the morning had thirst and slight aphthous ulcerations in the mouth: was ordered three drachms of castor-oil and tinct. of rhubarb, with five minims of tinct. opii and peppermint-water, which produced three loose *feculent* evacuations, with consequent ease: but during the following night he awoke with pain in the left hypochondriac region, increased by pressure and respiration, and situated below the ribs: the skin was perspiring freely the following morning, and there was very great tenderness on pressure. A sinapism, and afterwards a cataplasm, was applied to the part in pain, which was somewhat relieved, but still continued, extending into the lumbar and umbilical regions, and much increased on sudden pressure, and preventing his lying down. He repeated the castor-oil, rhubarb, and opium draught, which acted freely: the pulse was 96, small and feeble: the tongue furred and moist.

On the 28th, the pain was relieved, and pressure was better borne; and with the support of a belt, he was able to move about his bed without pain; and there is some tympanitic resonance over the painful part. Twelve grains of aromatic confection and half a drachm of tincture of cardamoms, in mint-water, were given three times a day: twenty-four ounces of lateritious urine, of sp. gr. 1016, were passed in twenty-four hours, and there was more albuminous deposit: he generally micturated twice during the night; and continued to perspire. The pain continued slightly at intervals, with flatulence: the bowels were regularly open twice or thrice daily, the evacuations being loose and *feculent*: the urine had been increasing in quantity to forty-eight ounces, and was of a sp. gr. of 1010, not quite so coagulable; and depositing crystals of lithic acid, on standing after the addition of nitric acid, as well as a small quantity of albumen.

On the 8th of June, he had been up for two days; and purpurous spots appeared on the legs, which had also shewn themselves before his admission into this ward: respiration was very short and hurried, with palpitation on the slightest exertion: the pulse 100, regular, soft, occasionally intermitting and feeble: there was no œdema. He was allowed milk diet. The urine became, about the 12th, dingy, with slight deposit resembling coffee-grounds, which was probably the colouring-matter of the blood; but it was about the same in quantity and re-action; the purpura gradually declined, and he was getting stronger, continuing to perspire. There was rather a troublesome cough, and increased palpitation, with some pain and flatulency in the abdomen.

He continued much the same until July the 6th, when he complained of vertigo, depression, more palpitation, and the œdema was increased: the urine presented much the same character. He was cupped over the heart to eight ounces; and the infusion of cusparia, with a drachm of tincture of cardamoms, was ordered three times a day. After this, the œdema and coagulability of the urine gradually increased, with præcordial oppression, and increased dyspnœa.

On the 11th, he was ordered three grains of ext. hyosc. with one grain of squill, and one of pil. hydr., night and morning: and on the 12th, being no better, a blister was applied to the chest, and julep. am. acet. with antimonial-wine was given three times a day, and the pills continued.

The face became more anæmial, œdematous, and the eyelids much puffed: was rather hoarse: and there were stethoscopic signs of pleural effusion, to small amount, on both sides of the chest, posteriorly; viz. dulness on percussion; distant respiration, and modified bronchophonic voice, chiefly on the right side; and there was also heard sub-mucous crepitation on the right side: the breathing had been relieved by the blister: the purpurous spots were of a brighter colour, and more numerous.

On the 15th of July, he was ordered decoction of bark, with three minims of hydrochloric acid, and half a drachm each of syrupus papaveris and tinct. card. comp. He continued without improvement until the 19th; when the urine was very coagulable, with deposit of red particles, and of

specific gravity 1011: and was ordered, decoct. cinchonæ, with half a drachm each of spt. æth. nit., spt. ammon. arom., and spt. juniperi comp., with three minims of tinct. opii, and the pills repeated without the mercurials: and on the following day, as the cough was troublesome, an opiate linctus was used occasionally. He felt rather better and stronger, but was obliged to keep his bed: the heart continued very irritable; and dyspnœa on slight exertion: the bowels remained regularly open.

On the 26th, he had a short troublesome cough, was ordered five grains of ext. hyosc. and a grain and a half of camphor every night, and the mixture was continued: he has ceased perspiring for some days; gets gradually weaker; and the symptoms continued much the same: the pulse was getting feeble, frequent, and irregular; and the abdomen flatulent, with slight griping pains.

On August the 2d, was ordered to have ten grains of aromatic confection, two drachms of tinct. of rhubarb, and half a drachm of spt. æth. nit. in mint-water, every six hours. He gradually got weaker; the voice faint; and the countenance distressed and very puffy: respiration more hurried; the pulse weaker; and the urine diminished to a pint daily, of a specific gravity of 1010: the legs were very œdematous, and the purpurous spots continued: the heart's action very feeble: and on the 18th of August he sank.

**SECTIO CADAVERIS.**—As five days had elapsed since his death, decomposition was far advanced; and but little reliance was to be placed upon most of the appearances. The following facts were, however, clearly ascertained.

There was a considerable quantity of fluid in the left pleura, and a still greater in the right: the lungs were apparently congested, and in parts condensed: there were no pericardial adhesions, but two or three ounces of fluid were contained in the sac: the heart was large generally, but the left ventricle was perhaps the most so: the right auricle and ventricle were large and strong; and the valves, both tricuspid and sigmoid, healthy. The left auricle was decidedly hypertrophic, though not greatly so: the mitral valve was covered in various places with exuberant vege-

tations, which were most abundant and conspicuous on the auricular surface: the sigmoids were healthy, except that the corpora Arantii were too large: the aorta was slightly dilated just above the sigmoids and throughout the arch: the descending aorta was also large as far as the renal arteries, below which it became suddenly narrower: the artery was much diseased throughout: there was a little atheromatous deposit in the ascending portion and in the arch, but this was more abundant in the descending aorta.

The liver was myristicated, but not beyond the first stage: the spleen was very large; and near the upper part, it was almost intersected transversely by a mass of fibrinous matter, which appeared to be the result of extravasation.

The kidneys were both large, and, as well as could be judged, coarse and granular: in the cortical structure of the left there was a mass of fibrinous matter, similar to that observed in the spleen, but the cortical structure surrounding which was much darker than elsewhere: this was probably the result of extravasation. (Plate IX. fig. 1 & 2.)

The circumstance of the aorta contracting so suddenly, immediately after giving off the renal arteries, is worthy of notice; though it may be hard to determine whether this contraction acted as a cause of the extravasation in the kidney by obstructing the passage of the blood beyond that organ, or whether it was merely such a diminution in the calibre of the vessel as might be expected to take place after the going off of arteries supplying such large viscera as the kidneys in this instance were.

The two following Cases are instances of the simultaneous occurrence of phthisis and albuminous urine; a coincidence which, considering the great frequency of both diseases, is, to say the least, not more frequent than might be anticipated, independently of necessary connection between the two.

#### CASE 9.

##### *Phthisis—Dysentery—Albuminous Urine—Death.*

JAMES BACK, aged 35; a hatter, residing in the Blackfriars' Road; of middling stature, with brown hair, light eyes, and

fair complexion; who had, till during the last five years, habitually indulged to excess in beer and spirits, and since that period in moderation: has enjoyed pretty good general health, although subject to one or two annual attacks of gout for some years; and having had small-pox and measles when a child, and habitually an annual cutaneous eruption in the spring: has had gonorrhœa twice; and on two very remote occasions sprained his loins — the last time being fourteen years ago, but he found no permanent inconvenience therefrom. Since the year 1837 has had severe cough, with shortness of breath, and considerable expectoration, which has been often tinged with blood; and has almost constantly had severe pain in the loins. He says, that about ten weeks before the present time he had inflammation of the bowels, for which he was salivated. He has been habitually exposed to chills when perspiring at work; and for the last two years the urine has been scanty, high-coloured, passed in small quantities and at short intervals, and abounding in lateritious sediments, and often, as well as the stools, passed with straining and tenesmus, more especially since the inflammatory attack mentioned; about a month after his convalescence from which, he found his lower extremities and abdomen swollen, and pitting on pressure. He was admitted into Luke Ward about the 20th of June; when he was cupped in the loins, and took the acetate of ammonia with antimonial wine; and subsequently, to relieve his cough, the *mist conii*, consisting of carbonate of soda and extract of *conium*. He was transferred to Job Ward on May the 12th; and then presented a pale, pearly, somewhat watery eye, with anæmial condition of the body, though with occasional slight colour in the cheeks: his frame was emaciated, and the skin dry, but inclining at times to moisture; and he has not perspired since the first appearance of the anasarca, which has diminished since his admission, being almost confined to his legs and loins, and but slight even there: the intellectual functions and organs of sensation appear in their normal condition; but the soles of his feet are less sensitive to titillation than formerly: is subject to vertigo and drowsiness, the former being followed by headache: sleeps well, and undisturbed by dreams: the

heart's action is regular, but feeble; sounds normal: the pulse 82, small, regular, very compressible. On percussion, there is dulness in the right subclavian region, with, on auscultation, bronchial respiration and bronchophony, with sub-mucous crepitation. Posteriorly, above the upper border of the scapula, there is cavernous respiration, with pectoriloquy and gurgling. On the right side there is normal resonance, on percussion; and below the clavicle there is abnormal resonance of voice, with sub-mucous crepitation. In other parts, the respiration is puerile, and 30 per minute: cough troublesome, with viscid, greenish, muco-purulent expectoration, containing some opaque white masses in it: the urine of sp. gr. 1030, densely charged with lithates, and very scanty; acid; becoming clear by the application of moderate heat; and then, on increasing the temperature, coagulating densely; very coagulable also by nitric acid; the lithates simultaneously disappearing; the albumen occupying a third of the test-tube after standing some hours, and of dense consistence: the bowels were relaxed; evacuations loose, rather slimy, and ill-concocted: the tongue was rough and rather dry, but tolerably clean; the saliva neutral. He was ordered, on May 12, to have low diet with beef-tea.

Mist. Mucilaginosæ c̄ Tinct. Hyosc. m xv. t. d.

Pil. Conii Comp. gr. v. ter die.

He continued much the same for a day or two: the bowels, however, became more relaxed by the 16th, when the evacuations were five or six daily, and slimy, preceded by griping pains in the abdomen. The cough and expectoration considerably diminished; and the tongue was moister: he had not perspired at all: the pulse was 76, small, and feeble: he passed about eight ounces of urine daily, and that at a great many evacuations, being called up three times almost nightly: it was of nut-brown colour, with deposit of lithates of the same colour; and undergoing the same changes by heat and acid, and of the same specific gravity as that above mentioned. He was ordered to take mist. cretæ c̄ confect. aromat., and a grain of hyd. c̄ cretâ, and one of extract of poppy, three times a-day. The bowels became rather less relaxed, but on the 18th were open six times: the evacuations were scanty, slimy: urine about fourteen

ounces in twenty-four hours, with less sediment, and of sp. gr. 1025: complained of pain in the bowels, and tightness across the chest. Two grains of pulv. nucis vomicæ were added to each powder.

On the 19th, he complained of pain in the loins, and the œdema was more marked in that part: the bowels were open four times; and on the following day the evacuations were, some of them, bloody, mucous, and passed with tormina and tenesmus; and slight perspirations appeared on the abdomen and chest during the night: the appetite was bad: the stethoscope detected the same signs: sibilant rattles were heard, and the sub-mucous crepitation was less extensive: pain appeared in the occiput and neck. He was ordered an egg daily on the 21st. The bowels continued open five or six times daily; the evacuations presenting a curdy, chopped-spinach appearance, with occasional lumps of sanguinolent mucus: the urine was passed at very short intervals, and in very small quantities, only a few drachms at a time, amounting to about eight or ten ounces in twenty-four hours, of sp. gr. of 1025, and presenting the same appearance, and re-action on testing for albumen.

On the 23d, the nux vomica was increased to three grains three times a day, with two of the hyd. c cretâ, and the aromatic chalk-mixture was continued. The pains in the head continued severe, preventing his sleeping: the evacuations, though as frequent, became more bilious and fæculent: and the skin and tongue were moist: the pulse continued about 88, small and feeble: expectoration chiefly mucous, with opaque white pellets in it.

On the 25th, two grains of rhubarb were added to each pill; and the infusion of cusparia, with five minims of tinct. opii, and half a drachm of tinct. catechu, was given three times daily; after which, the bowels were less frequently open, the evacuations improved in character, and were followed by relief to the griping pains: the urine was also passed at longer intervals, and in greater quantity at each time; and varied in sp. gr. from 1026 to 1031, according to the proportion of lithates present; continuing, however, very coagulable. The linimentum belladonnæ was applied to the nape of the neck, without, however, much



relief to the pain, which prevented his sleeping: the cough and expectoration were less.

On May 31, there was less lateritious sediment, and the urine had increased to sixteen ounces daily, and the sp. gr. was 1021: the pains in the head were less: his general appearance was less anxious; but he had emaciated since admission: gums were slightly tender; and the hyd.  $\bar{c}$  cretâ was omitted: the bowels were open four times daily, and the evacuations loose and fæculent, with slight curdy and sanguineous admixture: the skin was moist, perspiring occasionally: the expectoration tinged with blood, but chiefly mucous.

On June 2, the bowels were more loose, and the evacuations more curdy and sanguineous: urine passed in smaller quantities at a time, more frequently, and with pain referred to the hypogastric region—the re-action of the urine was unaltered; there was more sediment; and the sp. gr. was 1025. He was ordered to omit the medicines, and to take milk and suet three or four times a day. The bowels were less disordered for a day or two, but continued varying: the urine became gradually clear; the specific gravity diminishing by degrees to 1015, when it was quite clear; and about twenty-one ounces were passed daily. The aromatic confection was added to the lac  $\bar{c}$  sevo; after which the dejections were more consistent, and of a healthier appearance: there was increasing œdema in the lower extremities and scrotum, and he complained of great languor and debility: the pain in the hypogastrium continued during defæcation and micturition, but with less severity: the skin continued moist, occasionally perspiring. He was ordered some sherry-wine on the 10th of June, daily. The symptoms varied slightly; the urine remaining very coagulable, and about 1016, and in quantity twenty ounces daily, micturating twice or thrice every night; and the bowels continuing very loose, the evacuations of the same character: the appetite was bad; and he had occasional sickness. Arrow-root was substituted, at his own request, for a mutton-chop, which had been allowed him.

On the 18th of June a quarter of a grain each of sulph. cupri and of pulv. opii was ordered three times a-day; and the mixture, with infusion of cusparia, tinct. opii, catechu, and

conf. aromatica, was repeated. The bowels continued very loose and offensive: he gradually got weaker; and could scarcely take any food, being troubled with nausea: the cough and expectoration were but slight; and the stethoscopic signs varied but little: the pulse was very feeble, small, 96. Sinapisms were occasionally applied to the epigastrium; and fifteen grains of sesquicarbonate of soda, with twenty minims of tinct. cardam. comp., were given three times daily in peppermint-water; and five grains of pil. sapon. comp. every night. This treatment was continued, without much relief; though the alvine evacuations were now, as well as micturition, performed with less pain; and on the 4th of July an ounce and a half of brandy with soda-water was ordered daily: he was then passing about fourteen ounces of clear very coagulable urine daily, and of sp. gr. 1020: had slight cough, with expectoration: was still troubled with sickness: the alvine evacuations were rather improved: the pulse was 100, very small and weak. His voice gradually became very low, and he had soreness of the throat; and he referred to the pain at his stomach by pointing: his sickness was relieved somewhat by the brandy and soda-water: the pulse became very small, and scarcely perceptible: the bowels continued relaxed: the urine passed was about the same in quantity, and less in quality, sp. gr. 1015: and he died on the 11th of July.

**SECTIO CADAVERIS,** twenty-two hours after death. — Body much emaciated: little or no anasarca.

**Head.**—Some very prominent and sharp mammillary processes in the posterior part of the calvaria, near the sagittal suture. There was some sub-arachnoid effusion, and the membrane itself was too opaque. The central parts of the brain appeared somewhat softer than natural.

**Chest.**—There was very little fluid in either pleural cavity; and, with the exception of some adhesions near the apices of the lungs, the membrane on each side of the chest appeared healthy. In the upper lobe of the left lung was a multilocular cavity, of no very great size; and there were tubercles, in different stages, scattered through the remainder of the lobe, as well as some in a crude state in the upper part of

inferior lobe. There was considerable œdema throughout the posterior part of the lung; and it was fleshy and feebly crepitant throughout. There was likewise a small cavity, as well as tubercles in various stages, in the upper lobe of the right lung: the middle and inferior lobes contained but few tubercles: in other respects, the right lung was in a similar condition to the left. There was a moderate quantity of muco-purulent secretion in the third and fourth divisions of the bronchial tubes, but the bronchial membrane did not appear much affected.

The pericardium generally appeared dull; and there was an opaque patch upon the anterior surface of the right auricle. There was about an ounce of fluid in the pericardium. The heart generally appeared small, but well proportioned: the living membrane healthy. There were well-formed fibrinous coagula in all the cavities. The valves were all healthy, and well adapted to their orifices. The aorta and pulmonary artery healthy.

|                                                 |             |
|-------------------------------------------------|-------------|
| The right auriculo-ventricular opening measured | 4·9 inches. |
| The left auriculo-ventricular opening measured  | 4·2 ..      |
| The pulmonary artery                            | 2·0 ..      |
| The aorta                                       | 2·9 ..      |

the only disproportion noticed, being, that the orifice of the aorta was as large as that of the pulmonary artery. The peritoneum appeared dull: it contained a small quantity of serous effusion. Liver rather large, and myristicated. Gall-bladder full. Spleen large, and remarkably firm. Renal arteries healthy. Ulceration of the mucous membrane, of the lower part of the ileum, and of the colon.

The tunics of the kidneys were normal, and not adherent. The external surface of each kidney was smooth, and of a pale dingy yellow, finely marked with stellate vessels: the cortical portion large, and of a dingy yellow, presenting the appearance of granules of fat, marked with red striæ. The tubuli dark, as if from congestion. The renal capsules were large, pale, coarse, and remarkably firm. The fibres and ureters healthy. (Plates VII. and VIII. fig. 2.)

The right kidney, without the renal capsule, weighed  $8\frac{1}{2}$  oz.; the left, with the capsule,  $9\frac{1}{2}$  oz.

The following observations were made during life, by Dr. Rees, upon the blood and urine:—

|                               |        |
|-------------------------------|--------|
| Blood: Water . . . . .        | 828·92 |
| Solids of serum . . . . .     | 76·98  |
| Fibrin and globules . . . . . | 94·10  |
|                               | <hr/>  |
|                               | 1000   |

The Serum contained 65·15 parts of albumen in 100.

Urine contained 7·75 grains of dry albumen in each ounce.

Urea 8·73 per 1000.

#### CASE 10.

##### *Phthisis—Albuminous Urine—Purpura—Death.*

WM. MARKS, admitted June 2; a jobbing coachman, living in Tottenham-court Road; of middling stature; with light hair and eyes, and fair florid complexion: has at times drunk freely both of beer and spirits; gin and beer twice or three times on most days: has lived well: is not married: has not had syphilis, but gonorrhœa; and with the exception of ague when a child and living at Eton, enjoyed uninterrupted good health till four years ago, when he had rheumatic gout, and was in St. George's Hospital; since which he has had shortness of breath and palpitation of the heart, with frequent attacks of epistaxis and hæmoptysis, and occasionally severe attacks of rheumatic-gout, with violent cough and considerable expectoration. During the last two years three or four of his family have died of phthisis. Was in this hospital, suffering from phthisis with purpura and anæmia; a soft *bruit-de-soufflet* then was heard on the first sound of the heart; since which he has suffered from cough, shortness of breath on exertion, with hæmoptysis at times; and about ten days ago coughed up a pint and a half of blood, which was followed by relief to the tightness of the chest, which had existed previously; and has during the last month had purpureous spots about both legs, and which now completely surround both ankles; which, as well as the legs, the thighs, and loins, are œdematous, and have been so for three weeks, and his face has been swollen in the morning. Has emaciated lately: never had a blow in the loins, or vertigo, except after the last severe hæmoptysis. He had tinnitus aurium in right ear for two months, and has since been deaf in that ear: vision is perfect:

and he never had paralysis, or any spasmodic affection. Is subject to dyspepsia; and frequently has sickness, with pyrosis. Has, during the last two years, been subject to one or two nocturnal calls to micturate, the quantity voided being generally small at each time.

He was admitted into Job Ward on June 2, 1842. The fingers are clubbed, and the nails incurved: the countenance sallow and pale: the conjunctivæ and lips anæmial: he complains of pain in his side, and at the scrobiculus cordis at times, with flatulence. The upper part of the left side of the chest is dull on percussion: respiration is bronchial, with augmented resonance of voice; and sub-mucous ronchus, which, with sibilant ronchi, are heard over nearly all that side of the chest. There is tubular respiration and bronchophony at left apex anteriorly, with sub-mucous ronchi; and at left apex, posteriorly, the same is heard; and about the posterior angle of the scapula, and a little below, there is cavernous respiration, with pectoriloquy: respirations are 25 in the minute, and hurried on the least exertion; and his cough is troublesome. The impulse and diffusion of the heart's beat are normal; but the second sound is prolonged, and harsh below the third costal cartilage: to the right of the nipple, and below and just to the left of the nipple, a soft *bruit* accompanies the systolic sound: the pulse is 70, small, feeble, and regular, but rather sharp; the skin moist: the tongue pale and moist, indented by the teeth: the saliva acid: the bowels are open twice daily, with loose feculent evacuations: he sleeps well, when not disturbed by the cough: has had during the last month pain in the temples and sides of the head, and pains in his back and loins after walking a short distance: his face is of a sallow icteritious tinge: the urine is acid, pale, 72 ounces in twenty-four hours, of specific gravity of 1008, and yielding a copious curdy precipitate on testing with heat and nitric acid.—He was ordered to take the compound conium pill three times a day; the effervescing citrate of ammonia mixture; and to take Iceland-moss with milk, and two lemons daily in lemonade; and low diet.—The purpura declined in the number of spots, and became of a light colour; the cough was troublesome, with muco-purulent expectoration; and he complained of pain in

the head, and in the right hypochondriac region, the latter being increased on a full inspiration. The bowels being confined, he took on the 14th a senna-draught, with half a drachm of spt. ammon. aromat., which acted freely.

On the 7th, he had had bilious vomiting: the purpura had nearly disappeared, and the aspect was less icteritious: the œdema was less in the legs, but had increased in the loins, where he complained of pain, extending thence into the neck, and also on coughing, or being manipulated in the right hypochondrium, where, just below the ribs, dulness existed on percussion: he was now taking middle diet: the evacuations were of light-brown colour.

On the 8th, he was ordered to take two grains of pil. hydr. twice a day, and to continue his other medicines. He continued passing about eighty ounces of urine in twenty-four hours, of specific gravity 1009, acid, and very coagulable by heat and nitric acid: the pulse was 72, rather jerking, but feeble: the bowels continued open: the expectoration was more mucous and frothy: and the gums were tender, with pain and tumefaction about the angle of the jaw.

On the 11th of June the pupura had returned where it had faded away. The pil. hydr. was omitted: and on the 13th, the mouth being painful, and the salivary secretion rather profuse, the alum-and-myrrh gargle was ordered.

The purpureous spots varied much, disappearing and again re-appearing: he had nocturnal calls to micturate; and the cough continued troublesome: he had less pain in the right hypochondrium, and the dulness on percussion was diminished.

On the 18th, five grains of citrate of iron were given three times a day in mint-water; and he was ordered to continue the lemon-juice, and compound conium pills. The cough became more troublesome, and he had occasional vomiting; and mucilaginous mixtures with the mineral acids were prescribed, with slight relief to the cough: the loins continued more œdematous, though the legs were less so; and the purpura varied a great deal. A blister was applied over the sternum, on the 2d of July, the patient complaining of tightness and oppression in that part; and he seemed to be relieved thereby. And on the 9th, the bowels being confined, three drachms each of castor-oil and tinct. of rhubarb, with four

minims of tinct. opii, were given in peppermint-water, which acted three or four times: his cough continued troublesome; the expectoration was more purulent, and the œdema and general uneasiness increased, with continued variation of the purpura; he was ordered the ammonia julep, with half a drachm of tincture of cardamoms, every six hours: and when the bowels were confined, the rhubarb and castor-oil draught was given, or rhubarb and magnesia: he gradually got weaker: the pulse being 85 or 90, and feeble. In the beginning of September he had diarrhœa, for which mist. cretæ, with acid hydrocyanic dil. m i., were given, three times a day. The respiration was more hurried and wheezing, with tendency to orthopnœa: the cardiac sounds continued as formerly mentioned: there was dulness and bronchophony below both clavicles, and gurgling on the left side, with submucous and sibilant ronchi in nearly all other parts of the chest: the urine was diminished, and of specific gravity 1018, and very coagulable; and the anasarca had generally increased. And on Sept. 19th, he complained of constant nausea and sickness, and could get but little sleep. He was ordered half a grain of hydrochlorate of morphia, and a grain and a half of camphor, every night; and oxymel julep, with fifteen minims of the compound tinct. of camphor, every six hours, and to have arrow-root. The nausea and sickness continued: the purpura extended to the arms: his manner was dull, heavy, and stupid, probably from the effects of the morphia: the pulse 74, very small, and feeble; and the bowels confined: the cough continued very troublesome; and the urine very scanty; he could keep nothing on his stomach; and died on the 23d of September.

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In Cases 9 and 10, we have the coincidence of purpura with albuminous urine; a coincidence which, considering the tendency to hæmorrhage which not unfrequently exists in the latter disease, might have been expected to exist more frequently than we actually find to be the case in practice. In both these cases, too, the purpura existed in the lower extremities; and may probably have been the result of the impeded passage of the blood through the ascending cava, which must

have resulted from the liver having been gorged by long-continued thoracic disease.

The next case is one in which it is probable that the disease in the chest, liver, and kidneys co-existed for a considerable time; and in which it is not very easy, either from the history of the case or the appearances after death, to decide which was the primary lesion.

#### CASE 11.

##### *Albuminous Urine—General Dropsy—Death—Disorganized Kidneys—Old Bronchitis.*

SARAH COOKSEY, aged 44; admitted July 6, 1842; a short spare person, of dark complexion, always resident in London, and occupied within doors at the trimming of hats, and never habitually exposed to sudden changes of temperature. Her diet has been poor; and until within the last two or three months, when she has taken a little porter daily, she has been a teetotaler for years. She has borne eleven children; and miscarried once, seven years ago. Never to her knowledge had injury to the back, fits, paralysis, syphilis, scarlet-fever, rheumatism, or gout; nor has she taken mercury in quantity: the only severe illness she remembers to have had was typhus-fever many years ago, from which she was a long time recovering.

Perceived no deviation whatever from her usual health, which was always delicate, until four months ago, when she became a patient at the Surrey Dispensary, complaining of debility, low spirits, nausea, loss of appetite, *malaise*; and experiencing relief to her symptoms, gave up her letter. The urine is known to have been albuminous during this attendance.

Ten weeks ago, dropsy first appeared in the feet and ankles, afterwards in the belly; and four days ago the face swelled for the first time.

As long as she has taken notice of the urine, *i.e.* about three months, it has been pale and clear, never dark: scanty, but passed often, although not habitually in the night: never had attacks of giddiness, spasmodic twitches, cramps; nor has she observed that her skin was different from usual: suffered occasionally from aching pains in the larger joints.



At present, the face is considerably swelled, especially around the eyes, shining and smooth, and marked with faint erysipelatous blush: considerable pitting of the legs and thighs, which are not tense: the anterior surface of both the former covered with lepra of some years standing: œdema of loins passing a short distance round the abdomen: skin soft, smooth, and slightly moist: intellects apparently healthy, although far from bright: smell has been gone for three months; taste going: hearing somewhat impaired, although not to an increased extent latterly: sight, and common sensation, good: tongue morbidly clean, and smooth at the tip and edges: anorexia: bowels griped and purged: pulse 84, a small, thready, compressible jerk: no enlargement of the superficial veins: respiration 19, easy: eye not jaundiced: serous chemosis of sclerotic conjunctiva.

*Chest.*—Abnormal rotundity of upper parts anteriorly, with preternatural resonance on percussion: respiration generally loud, coarse, and regular; no particular sounds, beyond a hoarse, sonorous rattle occasionally: heart's action a little irregular; no heaving nor visible impulse; a double bellows' sound, deep-seated, and most audible a little above and to the right of nipple, not proceeding far up the aorta: and, becoming indistinct in the intervening part, it is again heard in the axilla, having something of a musical character.

*Abdomen* largely and uniformly distended, universally tympanitic anteriorly: evident fluctuation in the depending parts.

M. Cretæ Aromat. 4tis horis.

Conf. Rutæ ʒi. Asafœtid. ʒfs. Tinct. Opii. m x. pro Enemate om. nocte adhibend.

From the time of her admission to her death she kept her bed, at first appearing to be benefitted by the treatment; for the œdema of the face subsided; the cough, with the dyspnœa, became less troublesome; and the abdominal tension less distressing: but this change was only of a few days' duration, for at that time all these symptoms became aggravated; and, in addition, it was discovered on the 10th that the abdominal effusion was increasing, while the purging still continued: the urine, after the first day, was never above sp. gr. 1013, but was generally 1010: the quantity varied, without

any evident relation to the specific gravity or quantity of albumen, between 3xxij. and 3xxiv.; and the albuminous deposit was rather diminished on the 18th and the following days. The treatment throughout was chiefly directed towards the relief of the urgent symptoms.

**SECTIO CADAVERIS.**—The upper part of the trunk emaciated: the abdomen somewhat distended: the integuments of the lower part of the trunk œdematous: the lower extremities œdematous: the upper emaciated.

Head not examined.

There was much effusion in right pleura; little in left: adhesions.

The bronchial tubes here and there much dilated; and there was evidence of probable bronchitis: there was some emphysema.

Whole heart small, though not badly proportioned: the right auricle perhaps rather large; the right ventricle very thin; and the left thick, in proportion to its capacity, which was very small; the endocardium dull and opaque; the mitral valve was much thickened in its curtains; but there did not appear to be any lesion of the surface of the membrane, which was smooth.

The aorta was dilated, and there was much atheromatous deposit upon its surface: the radial arteries very small.

Both the kidneys were much diseased: the tunic tore off pretty cleanly, exposing a surface marbled with a yellow deposit, which was slightly elevated: the section of the kidney presented an almost entire obliteration of the cortical structure, which was replaced by granules of an appearance resembling fat, and of the same colour as the deposit observed on the surface: the tubuli were distinct, but, upon close examination, appeared to contain a deposit similar to that observed in the cortical structure. (Plates III. and IV.)

The liver was in an advanced state of myristication; and the acini so much enlarged, that when it was lacerated it presented a botryoid surface.

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The following Cases comprise the remainder of those which were treated for this disease in the wards appro-

priated for that purpose ; and they are reported chiefly with a view to enabling the reader to judge of the comparative efficacy of the different remedies and plans of treatment pursued. One fatal Case only is included amongst them ; which has been so placed, because no inspection having been obtained, and the patient having been under treatment for a considerable time, it seemed to belong rather to the therapeutical than to the pathological division of the subject.

These cases are arranged, as far as the nature of the subject will allow, according to the remedies which were principally employed ; an arrangement, however, which could not, of course, be strictly adhered to ; since, in several instances, more than one important remedy was continued for a considerable time.

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CASES IN WHICH MERCURY WAS EMPLOYED TO A SUFFICIENT  
EXTENT TO AFFECT THE GUMS.

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CASE 12.

*Mild Mercurials, with Apparent Relief—Frequent Relapses.*

GEORGE HOLLOWELL, aged 16, with light hair and eyes, and fair complexion, of middling stature ; living in Spitalfields : has lived well, and enjoyed good health, till during the last four months : had measles, hooping-cough, and small-pox, when very young ; and fever four years ago : has lately been an errand-boy, and has been much exposed to wet and cold in consequence : never, to his knowledge, has taken mercury, or had a blow on the loins : has at times suffered from deafness ; and from imperfect vision, in consequence of a speck on the cornea : and about three months ago was subject to severe pain in his loins, which afterwards was felt in the thoracic parietes, and subsequently in his left leg ; but he never had any paralytic affection, vertigo, or drowsiness. The urine has been abundant ; and during the last two or three weeks he has occasionally been called to micturate once or twice during the night : for the last four months has had cough, with slight expectoration, and shortness of breath on exertion. About two months ago he observed his face swollen and puffy, and afterwards his legs, his face being most so in the morning : and during the last week his scrotum and penis have become very cedematous. He was admitted on the 20th of May. He now looks bloated and puffy : his cheeks and lips are coloured : the eyes look pale and pearly ; the pupils are dilated : the skin

warm and dry, but not harsh, and never perspires. The body was generally anasarcaous, especially the right side, on which he lies: the bowels rather relaxed: the tongue clean and moist: the appetite good. The left side of the chest is resonant, with the exception of a small portion at the base, where the respiration is distant, or inaudible: it is in other parts puerile. On the right side there is extensive dulness, with absence of vibratory thrill when speaking, the dulness varying with his position: respiration is distant; absent at the base: ægophony and bronchial respiration are heard posteriorly about an inch above the lower angle of the scapula; and the right side is larger and more rounded than the left: he has dyspnoea on moving about; and it is increased on lying on the left side: the heart's action is regular: rhythm natural: pulse 104, small, compressible: there is no evidence of venous obstruction: respirations are thirty a minute, occasionally wheezing: sleeps well: passes about twelve ounces of urine in twenty-four hours, alkaline, of a dark straw-colour, and with fishy odour, and of sp. gr. 1025: nitric acid causes effervescence, and a curdy precipitate ensues: heat causes little or no opacity, till a drop or two of acid be added; when copious curdy precipitation ensues, with considerable effervescence: saliva is neutral.

He was ordered to take *mist. salina*, with fifteen minims of antimonial wine, twenty of *spt. æth. nitrici*, and five of *tinct. digitalis*, three times a day; and two grains of *hyd. c̄ cretâ*, one gr. of *p. scillæ*, and five grs. of *ext. papaveris*, every night, and to have low diet: and on the 22d, he passed sixty-seven ounces of urine, of sp. gr. 1014; and on the 23d, 100 ounces at 1009; presenting the same re-action as before. The anasarca gradually diminished in his face and upper extremities: the skin continued dry, generally, but perspired at the flexures of the joints, and in the palms of the hands; and the respiration was hurried, being thirty-two in the minute: the urine, after the 23d, diminished, in quantity to about forty-five ounces daily, and of sp. gr. 1018 or 1019; and the abnormal sounds on respiration and percussion were confined to the lower part of the chest. He could lie equally well on either side; and the œdema was evident only in the loins and scrotum, and very slightly in the feet and ankles: the bowels continued regular, and he had scarcely any nocturnal calls to micturate: and on the 27th he complained of pains in the orbits, with slight deafness and grævedo: the appetite continued good: the tongue clean: the pulse 100, regular: but the effusion did not diminish much in the thoracic cavity; and there was no tenderness of the gums. He was ordered, on the 30th, to take half a grain of *pulv. digitalis*, a quarter of a grain of *pulv. scillæ*, and one grain of

pil. hyd. three times a day; but on the 2d of June the digitalis was omitted both in the mixture and powders, as he had been sick; the nausea being preceded by pain and heat across the forehead and eyes, with retching during the night: the bowels were open. He was ordered milk-diet.

On the 3d and 4th the urine diminished to twenty-six ounces, and was of sp. gr. 1030: the unpleasant symptoms in the head and forehead subsided, and there was less deafness; but the abdomen was full, and there was deafness on percussion in the right hypochondriac region. He was ordered a scruple of the colocynth and calomel pill, and a draught of house-medicine, which acted very freely: the urine again increased to about thirty-six ounces daily, and the sp. gr. was from 1019 to 1022, the coagulability being unaltered. He went on without much alteration; the pain in the forehead and heaviness being occasionally present, and he perspired slightly when up.

On the 13th, he was sick; the supra-orbital pain was very severe, and there was puffiness of the left eye-lid. He was ordered to omit the pills first prescribed, and to take half an ounce of liq. ammon. acet., and twenty minims of spt. æth. nitr. three times a day: there was no tenderness of the gums; and the thoracic dulness was much diminished; but ægophony below the angle of the scapula still remained.

On the 15th, twenty minims of vin. ferri were given three times a day in cassia-water; and he continued much the same until the 20th, when the pain in the forehead was more severe; the pulse 132; and he had shooting pains down his thighs and legs: had passed, during the last twenty-four hours, fifty-eight ounces of alkaline urine, sp. gr. 1018, and very densely coagulable by nitric acid. He was cupped to eight ounces on the nape of the neck, which partially relieved the pain; and on the 2d of July a blister was applied to the same part. On the 4th of July, the skin was hot, and the tongue rather furred: he complained of pain in the head, with heaviness and loss of appetite: the pulse was sharp and frequent. He was bled to six ounces, and ordered the acetate of ammonia mixture with antimonial-wine: he was much relieved by the bleeding; and the pyrexia had passed off by the following day: the legs had become more œdematous since his getting up, but the abdomen and loins were less so: he had no return of the pains, but felt languid; and, on the 18th, he passed thirty-two ounces of urine, the average quantity at this period of sp. gr. 1024. He was ordered to take a grain of sulphate of zinc, and three grs. of extract of camomile, night and morning; and the acetate of ammonia mixture with twenty minims of spt. æth. nit. three

times a day. The anasarca continued slightly to increase: the zinc was increased to two grains for a dose; and on the 27th, the *spt. æth. nit.* was doubled in quantity: the bowels were open once or twice daily.

On the 28th, he was prescribed one-sixth of a grain of elaterium, and two grs. of *ext. papaveris*, which produced several copious watery evacuations, and made him feel very feeble; and he again complained of the pains in his forehead. There was some swelling of the abdomen, with scarcely-detectable fluctuation, and dulness on percussion on the right side.

On the 30th July, one-tenth of a grain of elaterium, and two grains of *ext. papaveris*, and three grs. of *ext. hæmatoxyli*, were ordered three times a day; but was discontinued on August the 1st, when he was much the same, the bowels continuing freely open, and the œdema undiminished. He continued without alteration till the 24th, when he complained of the supra-orbital pains and general headache; and was ordered two scruples of *pulv. rhei c̄ potass. sulphat.*; and equal parts of *ung. iodin. comp.*, and *ung. hyd. nit.*, were ordered to be rubbed in daily over the region of the liver.

From this date to the 13th of September, no reports were taken; but he had a severe attack of peritonitis, for which local depletion and mercurials, &c. were exhibited, and he was now pretty well again: there was moderate œdema of the legs; and at the junction of the right hypochondriac and epigastric regions there was hardness and dulness on percussion, and fluctuation was detected: the pulse was 88, regular: the skin moist, occasionally perspiring: the urine passed was about fifty ounces, neutral, and rather less coagulable than before: he complained occasionally of pain in the forehead and eyes, and the pupils were very dilated: the abdomen increased gradually in size, and fluctuation became more marked: his aspect was more anæmial and puffy: he complained of thirst, and perspired but very slightly.

The pulse, on the 19th of September, was 96, small, feeble, and compressible: urine was twenty-six ounces, *sp. gr.* 1036. He was ordered the saline effervescing mixture, with twenty minims of *spt. æth. nit.*, three times a day. The urine increased to about forty-six ounces daily, and was generally of *sp. gr.* 1020; and continued alkaline or neutral until the 3d of October, when he felt, on the whole, better. The œdema was slight in the legs; the ascites was less, but still very evident; and the urine continued very coagulable. On this day he left the hospital, improved in health, the œdema having subsided. There was still fluid in the abdomen, and the urine was very coagulable, and still neutral, when he was examined in the middle of February 1843; expressing himself, however, as quite well.

## CASE 13.

*Albuminous Urine, with Hæmaturia—Mild Mercurials—  
Demulcents—Diaphoretics—Recovery.*

JOHN PHILIPS, aged 31: May 24, 1840: a brewer's drayman, single, living in the Borough; with brown hair, strong make, light eyes, and fair complexion: has lived well; has drunk hard of porter, beer, and gin, till the last year; and has enjoyed general good health till within the last two years, during which, and especially during the winter, he has been suffering from severe dyspnœa and cough: he had scarlatina, measles, small-pox, and whooping-cough, when a child: never had syphilis or gonorrhœa, and has never taken mercury: has been subject to rheumatic pains in the shoulders: he never, that he recollects, had a blow on the loins: during the last three months has had nocturnal calls to evacuate his bladder, and the urine has been clear. He was admitted into Lazarus Ward, on the 20th of April, for the dyspnœa and cough, for which he was cupped and blistered; and his legs, feet, and ankles became swelled, pale and pitted, on pressure. In a day or two after, about May 7th, he observed his urine very high-coloured, nearly as red as blood, with a grumous sediment after standing; and he had one day strangury, which was after the appearance of the hæmaturia: this was on the 8th: the hæmaturia commenced on the 7th, and the blister was applied to the chest on the 4th. His urine was found to become opalescent by heat. He was removed into Job Ward on the 4th of May. At present he has a florid appearance: the eyes do not look pearly: the tongue is clear and moist, red at the tip: the skin is dry, moderately hot, but perspires occasionally: he does not look anæmial: the appetite is tolerable; but he complains of thirst: the bowels are confined: no vertigo or tinnitus aurium: sensation perfect: vision and the other faculties unimpaired: his recollection is not so good as formerly: there is now no œdema or ascites: has been disturbed and watchful, which he attributes to his cough, which still continues troublesome: expectoration is mucous and frothy: the chest resonant: respiration in right lung natural; in the left, sub-mucous ronchus: respirations 24 in the minute: the heart's action is regular: the rhythm natural: pulse 72, compressible. The urine of sp. gr. 1012, acid, with deposit of dark-brown particles; of a dingy colour; slightly effervescing on addition of nitric acid, becoming opalescent, and after some hours depositing flocculi: abundant in quantity: being heated, becomes opalescent, and, after some hours' standing, also depositing flocculi: the saliva is acid.

On May the 12th was ordered, as the bowels were confined, fifteen

grains of pilula colocynth c̄ calomel., and a senna-draught in six hours afterwards; and he was put on low diet. The aperients were necessarily repeated on the 14th; and on the 16th there was less sediment in the urine, and he had passed forty-eight ounces in twenty-four hours, sp. gr. 1008: he had micturated three times in the night, and the bowels were freely open. The cough and expectoration were diminished; the latter opaque mucus, more friable and consistent. He is taking the mucilaginous mixture, with twenty minims of tinct. hyosc. and fifteen of vinum ipecac. three times a day, and a grain of ipecac. with five grs. of ext. papav. every night.

On the 18th he was much the same, with slight dyspnœa, the expectoration having a slight rusty tinge: the sub-mucous ronchus still existed, and the bowels were open. A blister was applied to the sternum, and the infusum lini given as a drink; and on the next day the urine was much clearer, and the albuminous flocculi deposited after standing, subsequent to the addition of nitric acid, &c. were diminished: the cough and dyspnœa were also relieved: the pulse 76, regular, compressible. He continued improving, the respiration becoming less frequent, cough less troublesome, and the expectoration easier: the dingy deposit diminished in the urine, but the other conditions remained much the same: the bowels were regular, and he felt much improved, with better appetite. Stethoscopic signs of bronchitis still exist in both lungs, confined to the bases, and principally on the left side; the pulse was 72, regular, and soft; but he complained of itching, with scurfiness of the skin. He was ordered, on the 24th, a grain each of ext. hyosc., of ipecac., and of pil. hydr., three times a-day.

On the 27th of May the cough was more troublesome, and the expectoration more watery. He complained of dimness of vision: the pulse was 80, regular, soft: the skin warm, dry; and he continues to micturate usually once or twice nightly. The cough and expectoration were relieved in a day or two; but the itching of the skin and dimness of vision continued, and he complained of "weakness" in the loins, and there was again more sediment in the urine. On the 1st of June the gums and mouth were sore; he omitted the pills, and continued his mixture; and on the 4th, the mouth continuing very sore, the alum-gargle, with tinct. of myrrh. was used. The urine continued dingy, with subsidence of red particles; and the supernatant urine was but very slightly opalescent on the application of the usual re-agents: the quantity passed, and its specific gravity, continued the same. The cough was still very troublesome, and sub-mucous ronchi were heard at the base of the left lung, posteriorly: the mouth, continued very sore, with enlarge-



ment of the lymphatic glands about the jaw; which, however, subsided about the 10th of June: the urine was then less dingy, the specific gravity was 1011, and the quantity forty ounces a day. He still complained of dimness of vision: the pulse was 90, small, feeble; the bowels open twice or thrice daily. After the 14th, the urine ceased to give evidence of albumen, but was still slightly dingy: the cough continued troublesome, but was better; he felt altogether stronger, and there had been no œdema for some time. He left the hospital on the 18th of June.

This man has since been following his employment in good health.

There may be some doubt whether this was a case of simple hæmaturia, or of renal disease. The low specific gravity of the urine renders it highly probable that it was the latter; or, at all events, that the kidneys were in a state of congestion sufficient materially to derange their function. It is also not improbable that this was an instance of the congestive form of disease produced by bronchitis; and it is in such cases, if in any, that we may hope for relief by the careful exhibition of mercury.

#### CASE 14.

##### *Albuminous Urine, with Bronchitis — Antimonials — Mercurials — Death.*

MATTHEW M'CARTHY, aged 28, a coal-whipper, of short stature and spare frame, with full round bloated face, light hair and eyes, of fair florid complexion, and of a hasty disposition: has drunk freely of beer and spirits, and led an irregular life; has been living in the Commercial Road: has been much exposed to wet and cold, often when perspiring: has had good health, with the exception of occasional attacks of rheumatism, three or four years ago: had scarlatina nine years ago; and syphilis twice, for which he took pills for a week, but was not salivated till during the last year: never had a blow on the loins, nor has suffered from any hæmorrhage: has during the last two months had nocturnal calls to micturate, when he voided considerable quantities: has never had paralysis, deafness, or any spasmodic affection: has had dimness of vision during the last two months; and during the same time has had vertigo: he sleeps well when not disturbed by cough, but is not heavy to sleep. During last year has had cough and dyspnoea, especially on lying down in bed or on exertion, with pituitous frothy expectoration:

nine months ago he first observed his legs swollen, and they pitted on pressure: this was especially observed towards evening, has continued to the present time, and has extended to the loins. He was admitted into Job Ward, June 3, 1842, complaining of the above symptoms, with rather an anæmial look; with cough and shortness of breath, and mucous watery expectoration: the chest is resonant on percussion, except at the bases, posteriorly: respiration is accompanied by sonorous and sibilant ronchi, and cooing sounds; but is deficient at the bases posteriorly, except on a forced inspiration, when it seems distant, and the same sounds as above are heard: the heart's action is regular, rhythm natural, the impulse feeble, and the sounds clear: respirations 25 in minute: he has thirst; appetite good: the tongue is moist, and rather milky: the skin dry, scurfy, with a papular eruption in some parts: he perspires very slightly: at intervals the pulse is 66, small, feeble, and regular in frequency, although not quite so in force: the saliva is acid: the bowels are regular: the conjunctivæ slightly tinged with bile; and he has occasional sickness: œdema is just perceptible in the legs; more evident and tumid in the loins. There is no evidence of effusion into the abdominal cavity. The urine was pale, clear, acid; about fifty ounces in twenty-four hours; the sp. gr. 1013; and a copious deposit followed the application of heat and the addition of nitric acid. He was ordered a warm-bath for ablution; after which he perspired slightly; low diet was allowed him; and he was prescribed the saline mixture, with twenty minims of antimonial wine every six hours; and five grains of ext. hyosc. and one of camphor and of pulv. ipecac. to be taken every night.

On June 6, he had nausea with bilious sickness, and the conjunctivæ were tinged with bile: the bowels were freely open: the cough prevented his sleeping: the expectoration was more frothy. He was ordered hydrarg.  $\bar{c}$  cret. gr. ij. pulv. ipecac. gr. i. ext. hyosc. gr. ij. to be taken every night and morning, and to continue the antimonial mixture. The cough and respiration were relieved, and the œdema diminished: he micturates three or four times nightly: the tongue became very red, but moist; the other symptoms unaltered.

On the 10th, his gums were slightly mercurialized; the mercury was omitted in the pills, and he continued to take the hyoscyamus and ipecacuanha, and the antimonial mixture. The tenderness of the gums ceased in two or three days: the urine was about twenty to twenty-four ounces daily, copiously coagulable, though on some days it was less so than on others: and the sp. gr. was 1012: the cough became more violent, but less frequent; and he complained of pain and soreness at the costal attachments of the abdominal muscles and diaphragm. The expiration was very prolonged, and accompanied

by sonorous and sibilant ronchi, or rather wheezing: on June 15, a blister was applied over the sternum, with some slight relief to the cough. He was on the 17th troubled with bilious sickness; effervescent mixture was given, and the ipecacuanha omitted in the pills, and a grain of squill was added. The cough and dyspnoea were now the chief symptoms, producing uneasiness and preventing sleep: the oedema of the legs was on the increase: the bowels were open; and he had no sickness: and was ordered, on the 20th, mucilaginous mixture, with fifteen minims of ipecac. wine, and twenty of tinct. Benzoini comp. three times a-day, and to have middle diet, the appetite continuing good. The urine continued the same in quantity and quality, and he continued to micturate three or four times nightly; and the cough and dyspnoea were troublesome. Another blister was applied to the sternum on the 23d, with but slight relief; and on the 27th, an emplastr. galbani comp. was applied to the loins. He was not so often called to micturate in the night: has lost flesh, but the oedema in the legs has increased.

On July 4, he was ordered a grain of zinci sulphas, and two grains of ext. anthemidis, three times a-day; and half a drachm of spt. æth. nit. added to each dose of the mixture. The sputa became thicker and white, and were more easily expectorated; but the cough and dyspnoea continued varying; the pulse being about 80, weak and small. On July 25, there was more difficulty of breathing; and sonorous and sibilant ronchi, with prolonged wheezing expiration, were heard nearly all over the chest. A blister was applied over the sternum, five grains of pil. conii comp. and of pil. galbani comp. were given every night; and the oxymel julep, with half a drachm of tinct. camphor comp. three times a day. There was then less oedema in the legs; but considerable in the abdomen and loins.

On August 1, the cough continued troublesome: he was weaker: the urine 1012, less in quantity, and still very coagulable. He was ordered mucilaginous mixture, with twenty minims of tinct. hyosc. and forty minims of spt. æth. nit.; and as the bowels were but sparingly open, two scruples of comp. jalap powder were taken, which acted freely; but he afterwards complained of sickness; which continuing, he was ordered ten grains of magnesia, with two drops of Scheele's hydrocyanic acid, in aqua distillat. three times a-day, which partially relieved the nausea; but the cough and dyspnoea continued, and the oedema increased. On August 6, half a grain each of squills, digitalis, and ipecac. with two of ext. hyosc. were given twice a day; and a scruple of the acetate potassæ, with a drachm of spt. æth. nit. and two minims of hydrocyanic acid, three times a day; after which there was a slight increase in the quantity of urine

passed; sp. gr. and coagulability remaining the same: the skin was occasionally moist and perspiring; but his appetite gradually left him, and he had nausea and sickness: the œdema increased, and was very great in the scrotum: the respiration was more hurried and laborious; and the cough troublesome. Effervescing mixture, with tinct. aurantii and tinct. opii, was ordered on the 17th; and a blister over the sternum on the 23d, which relieved the urgency of the dyspnœa, but without producing any material alteration. He became gradually weaker and more exhausted; and died Sept. 8, when no inspection of the body could be obtained.

This was probably another instance of congestive disease of the kidney, giving rise to albuminous urine, and occurring in a broken-down constitution; from which cause, the use of the remedies employed in the preceding Case was not attended with the same successful result.

#### CASE 15.

##### *Antimonials—Mild Mercurials—Relief.*

SARAH BRAY, aged 32, admitted May 11, 1842; a woman rather pale, but not emaciated; of fair complexion; resident in London; and exposed, in her occupations of washing, to frequent alternations of heat and cold: her habits have been temperate: the catamenia, from the age of fourteen, have been regular as to period, but profuse. Her health was good until three weeks ago; when, without any unusual exposure, she became affected with pain under the sternum, general febrile symptoms, with swelling of the feet and loins: her urine from the first became scanty, dark in colour, with abundant sediment, and was not passed so frequently as usual. After the first few days the skin became perspirable. She has already been under treatment; and experienced some relief from cupping on the loins, and nauseating doses of antimony. On admission, the skin was warm and perspirable: the cellular tissue around the ancles, and in the back and loins, œdematous: no fever: slight giddiness: pain over the sacrum: bowels open: tongue coated with moist white fur: pulse 80, regular, rather hard, and jerking: respirations easy, 20: urine, sp. gr. 1034, slightly acid, dark-coloured, loaded with lithates, and albuminous: second cardiac sound loud and sharp. She was ordered to take the acetate of ammonia, with the antimonial wine.

This patient was much improved during her residence in the hospital: the skin throughout continued perspirable, though varying slightly in degree.

On the 27th of May the œdema had disappeared; the aspect was healthy; the strength improving; and she was allowed wine and meat.

The urine, although loaded with lithates on admission, and on the few days following, became perfectly clear by the use of the carbonate of potash, and was reduced on the 23d to the sp. gr. of 1023; the quantity of albumen being also slightly diminished. On the following day the sp. gr. rose to 1032; but the secretion continued free from lithates.

On the 31st, in order to improve the abdominal secretions, she was ordered to take, night and morning, the following pills:—

Hydr. c̄ Cretâ gr. ij. Sodæ Exsiccatae gr. iij. Ext. Papav. gr. v.  
ft. pilulæ duæ.

On June 10th, the œdema and pallor returned: the skin was less moist: the strength reduced: and she suffered from occasional nausea and vomiting. The two last symptoms were removed by hydrocyanic acid.

On the 17th, she was rather improved.

On the 22d, the gums being slightly affected, the pills were omitted.

On the 27th, her strength had increased: skin was moist; and the œdema was to be observed only around the ancles: and on July 4th her face had resumed the ruddy aspect of health, and she considered herself so well, that she left the hospital.

The urine continued throughout of high specific gravity, sometimes reaching 1035, but never below 1027; and occasionally loaded with lithates. The quantity, after June 10, averaged ℥xx.; though previously it had not amounted to more than ℥xiv. When she left the hospital the quantity was ℥xxiv.; very albuminous; sp. gr. 1031, and loaded with lithates.

In this case, the continued foul state of the tongue and the deposit of lithates in the urine suggested the belief that some further visceral disease than that of the kidney existed, and it was under this belief that the mercurial was prescribed: and under its influence the tongue certainly became cleaner, but the patient did not improve in other respects. She was, however, much better when she left the hospital; though, a few weeks afterwards, she applied for relief at the Surrey Dispensary, with general anasarca. We are not, however, aware of the ultimate result of the case.

The four preceding cases, together with that of Beckley (Case 4), and Wynn (Case 8), were all in which mercury was employed to a sufficient extent to affect the gums. In another case, however, which will be presently related, the hydr. c. cretâ was given in small doses, though no approach to ptyalism was produced. The principal reason why this medicine was not employed in a greater number of cases, was the conviction, which the trials that we made of it impressed upon our minds, that it was at best an inefficient, but in all probability a dangerous remedy, in those cases in which the renal disease was the primary and principal affection; and that, even where its exhibition might be indicated by disease in other organs, its effects upon the system should be most carefully and anxiously watched. In the case of Beckley, the improvement appeared satisfactory until the very time at which his gums first shewed signs of mercurial action; after which he seemed to get worse in every respect, till the time of his death.

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CASES IN WHICH ELATERIUM CONSTITUTED AN IMPORTANT PART OF THE TREATMENT.

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In none of these cases will it be found that the elaterium was the only remedy employed, or even that which was most efficient in producing the amendment effected: they however tend to shew that this remedy may be productive of some benefit, and ought not to be overlooked in the consideration of the means which may be available in combating this formidable disease.

CASE 16.

*Renal Disease, probably of some standing—Elaterium—Antimony—Relief.*

JOCK HRUSCH, aged 40; a large made, dark-complexioned man; a native of Denmark: who, until fifteen years ago, enjoyed very good health; at which time he had an attack of dropsy, which was confined to the abdomen; for which he was laid up in Holland for twenty weeks: from this he recovered. He came to England eleven years since, and continued his occupation of stableman, but indulged freely in spirits. Since his attack of ascites, he has usually had occasion to

micturate once or twice in the night; and he states that his urine has been in less quantity. During the last five winters he has had slight attacks of what he calls inflammation of the chest, from which he has quickly recovered: at those times, he experienced pain in the side, with some difficulty of breathing, and cough.

Six weeks ago, without any obvious cause, but probably from exposure to cold, he noticed his feet and hands were swollen towards night, but in the morning resuming their usual appearance and size. This shortly became aggravated; and the œdema extended up the thighs and legs, and remained constant. He has been treated with diuretics; and for the last two or three days has been troubled with dyspnoea and cough, with copious expectoration. His urine, latterly, has been passed very frequently, and in very small quantities. He was admitted on July 27th, 1842; and at present his countenance is rather anxious, his eyes pearly, and his face puffy: the tongue moist and white: the skin, generally, moist and soft: the chest is resonant on percussion; but mucous and sonorous râles are heard extensively in both lungs, and respiration is hurried and laborious; his cough is troublesome: the heart's action is normal: the pulse is 84, small; but the artery feels rigid. The legs are very œdematous, and the abdomen full; but fluctuation is not detected: the bowels are confined: the scars of a blister and cupping, are observed over the liver and scrobiculus cordis. The urine passed is about forty ounces in twenty-four hours, the sp. gr. being 1016, and it is very coagulable by heat and acid, and he is called upon several times in the night to pass it. He was ordered, on July 28th, one-fourth of a grain of elaterium three times a-day, and half an ounce of castor-oil immediately, and to have low diet; after which the bowels were open, but not much: his cough was very troublesome, preventing his sleeping; and he expectorated a good deal of viscid mucus: the œdema diminished in the feet, which were moist; other parts of the body being dry, and not perspiring. He continued the elaterium twice or three times a-day, according to the condition of the bowels, which were open three or four times daily; and on the 2d of August the acetate of ammonia, with half a drachm of antimonial wine, were ordered three times a-day; and the elaterium was given every morning. His cough became less troublesome, the expectoration easier, and diminished, and the respiration less hurried; the bronchitic râles gradually disappeared, he slept better, and perspired partially. The bowels were very open, and the evacuations watery: he complained of pain in his head; and was ordered, on the 5th of August, a grain of camphor, and four of ext. of hyosc. every night; and one-eighth of a grain of elaterium was given every morning. The condition and quantity

of the urine was unaltered; and the œdema had very much diminished in the legs, the face being puffy.

On the 9th, the appetite being improved, he was ordered middle diet: the œdema continued diminishing, and the skin became moist; the nocturnal micturitions much less frequent: the bowels were regularly and freely open; and on the 15th the urine passed was about forty ounces in twenty-four hours, rather dingy, very coagulable, and of sp. gr. 1010. He complained much of weakness: the face was puffy and pale, and the legs but very slightly œdematous. He was ordered to take the infus. gent. comp. with ten minims of acid. nit. dil. three times a-day, and to omit the elaterium. He improved in strength, and looked better and more lively: the bowels continued regular, and he perspired freely; the urine remaining very coagulable, and the sp. gravity being 1012.

On August 23d he left the hospital, with very slight œdema of the ancles, and puffiness beneath the eyes.

The urine of this patient was found by Dr. Rees to contain 4·5 grs. of albumen in a fluid ounce: it contained no lithic acid.

#### CASE 17.

##### *Antimonials—Elaterium—Considerable Relief.*

JOHN FOLLEY, aged 38, a native of Kerry; a boot and shoe maker; married; having resided in Ireland till two years ago, and enjoyed very good health; occasionally taking fifteen or sixteen glasses of whiskey a-day, but at times abstaining altogether: came to England two years ago, and became a teetotaller; and continued observing the pledge till Christmas last, when he again became very intemperate in rum and beer, until the present time. About five weeks ago he left off a flannel-waistcoat which he had worn through the winter; and to this he attributes his present complaint. He first noticed cough, followed by swelling in the legs and ancles, disappearing partially in the morning. He had medical advice for two or three weeks, but did not perceive any improvement. He then became an out-patient at this hospital for a fortnight, and has since been improving. His urine was examined, and found coagulable; he was directed to apply for admission; and he came into Job Ward on July 6th. He is not accustomed to sweat much: there is some slight œdema of the ancles: the sounds in the chest are generally healthy: the heart's action normal: the pulse being 86, rather sharp, but compressible: urine highly coagulable, both by acid and heat, its specific gravity being 1019: the bowels regular: he had



slight thirst, with rather a white flabby tongue and impaired appetite. He was ordered six drachms of the acetate of ammonia and half a drachm of antimonial wine three times a day, and was allowed low diet. The œdema diminished, and became scarcely apparent: he did not sweat at all: slept pretty well, being called to micturate once or twice during the night: the bowels were regular; and he continued improving until the 15th, when he complained of nausea, which he attributed to the medicine: the urine was then less coagulable than it had been; he was passing about the same quantity as on admission, and the specific gravity was 1026: there was slight œdema of the ancles on the 20th, disappearing, however, during the night; and the bowels were not very open. He was ordered one-sixth of a grain of elaterium three times a day, by which he was very freely purged; and the dose was, on the 22d, diminished to one-eighth of a grain three times a day: and as the nausea continued, it was, with the antimonial mixture, omitted on the 23d, and the effervescing mixture taken three times a day: the urine was increased in quantity, being fifty ounces in twenty-four hours; and the sp. gr. was, on the 29th, only 1018. He then felt very much improved: he had, however, slight œdema about the ancles: towards the afternoon, the skin was dry, and not perspirable; and wishing to leave, he went out of the hospital on August the 1st, the urine being still moderately coagulable.

## CASE 18.

*Anasarca of some standing—Albuminous Urine—Elaterium—  
Antimony—Great Relief.*

JOHN COX, aged 39, admitted August 3, 1842: dark-complexioned, rather large, and strongly made: has for years been employed as a porter at hotels and inns: married, and in the enjoyment of good health; partaking freely of spirits and beer, but not to excess: has been much exposed to alternations of temperature; after some considerable exposure to which, four years ago, he contracted rheumatism; which first attacked him in the heel, and afterwards in the principal joints: for this he was treated, and confined at home for seven weeks. Since this attack he has been liable to slight recurrences of the same complaint, which has occurred four or five times, obliging him to lie by for a few days at a time. About seven months ago an eruption appeared over his body, apparently of a vesicular character; and shortly afterwards, after exposure to cold, he perceived a swelling in the ancles and feet: this soon increased, and his legs became swollen; his abdomen also soon after became tight and enlarged, and his head felt full, with puffiness of the face. Three months ago he

took mercury for this affection, and his mouth, after taking a dozen pills, became sore: he removed into the country, where he caught scarlet fever, which confined him for five weeks. He had considerable sore-throat, and much difficulty of swallowing soon afterwards; and was obliged to have a part of the tonsils removed. The swelling was diminished; and he continued much the same till six weeks since, when his breath became short, and he had cough, which he is accustomed to have in the winter. He was partially relieved by the remedies he took; but during the last few days he has not felt so well. His urine, during his whole illness, has been increased in quantity; and he has been called upon to micturate twice or three times in the night, which had not been his previous habit. He was admitted into Job Ward on August 3, 1842. His aspect is anæmial, the eyes pearly, and he has a dusky hue of the skin, which he says has existed since the scarlatina. He has considerable œdema of the lower extremities, extending as high as the scrotum, penis, and loins: respiration is hurried on the least exertion, but there is no cough, and the thoracic viscera appear pretty healthy: the skin is warm, dry, and rarely perspires: the pulse is 92, rather sharp, but regular and compressible: the bowels confined; the tongue moist, rather flabby, and white: the urine passed in twenty-four hours is about fifty-two ounces, very coagulable by nitric acid and heat, and the sp. gr. is 1011. He was ordered low diet, and to take two scruples of pulv. jalap. comp. immediately; and on the following day, the bowels having been open twice, and the œdema being rather less in the legs, he was ordered to take one-eighth of a grain of elaterium three times a day, and to take half a drachm of vin. ant. pot. tart. with six drachms of jul. ammon. acet. three times a day: and on the 8th, being much the same, he was allowed a mutton-chop daily, and eight ounces of blood were taken from the arm; after which he felt lighter, but was weak, perspired freely at night, the respiration was less hurried, and the œdema had nearly disappeared; the urine was passed in about the same quantity, and on the 15th was of sp. gr. 1008. The bowels were then rather confined: he had nausea after taking food; and complained of pain in all his joints: he was ordered fifteen grains of pulv. rhei c̄ calomel, and a senna-draught, which acted very freely, with some relief to the nausea; but he felt very languid and weak; and was ordered on the 22d, when the bowels were again confined, two scruples of pulv. jalapæ comp., and to continue the mixture, and was put on milk diet: after which he gradually improved, was stronger, and there was very slight œdema, with occasional nocturnal calls to micturate, until the 14th of September, when his appetite was very good: he passed sixty ounces of urine in twenty-four

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hours, which was slightly coagulable, being much less so than it had been, and the sp. gr. was 1010: the pulse 96, full and rather sharp: he perspired but slightly; and continued much the same, looking very anæmial, the œdema being perceptible only in the legs, and that in the evening, after being up all day; but feeling, on the whole, much stronger and better; and left the hospital on the 19th of September, the urine remaining the same.

The sp. gr. of the serum of the blood was 1033.

The crassamentum was buffed and cupped.

CASE 19.

*Dropsy, with Albuminous Urine some years ago—Great Relief—Relapse—Purgatives—Elatarium—Bleeding—Relief.*

MICHAEL BOWRING, aged 56: a short, moderately stout man, a native of Limerick, where he farmed his own land, and lived temperately; but twelve years ago he came to London, where he has been working in an iron-foundry, exposed, in his occupation, to alternations of temperature, and leading an intemperate life. Four years ago, subsequent to a long exposure to cold after being heated, he had an attack of dropsy, his abdomen and legs becoming swollen, his water scanty, dark-coloured, and rather thick. He was then admitted into Luke's Ward, under Dr. Bright; and during his stay was much relieved, he says, by the use of warm-baths, and left the hospital cured. He has not since had a relapse; but has continued in health until Thursday last, when he felt unwell, with thirst, pains across the loins, and weakness, followed by swelling in the abdomen, legs, and eyelids, which has gradually increased; and he was admitted into Job Ward on the 29th of June. His skin is dry: tongue moist, flabby, white: he has slight thirst, and impaired appetite: complains of pain in the head; and his spirits are low; his countenance dull and heavy; his features full, and face pale; and his eyes pearly looking: œdema, but not great, in the legs and loins: the bowels are confined: the pulse 84, rather sharp, but feeble: nothing abnormal is heard in the sounds of the heart, or in the chest; but respiration is very easily hurried by exercise: urine passed in moderate quantities, of sp. gr. 1019, and moderately coagulable by acid and heat.

He was ordered to have low diet, and to take a scruple of pulv. jalapæ comp. at once, and half a drachm of antimonial-wine, with six drachms of acetate of ammonia, three times a day, in water; and on the following day, the bowels not having been open, half a drachm of pulv. jalapæ comp. and one-sixth of a grain of elatarium was ordered, which acted twice: the œdema rather diminished: the other symptoms

were much the same. A senna-draught was given, which acted once.—On July the 4th he complained of sickness, having vomited his medicine for the last two days, and the pain in his head was more severe. He was ordered the effervescent citrate-of-potassa mixture, and was bled to the amount of ten ounces; after which his head was much relieved: the bowels were confined; and he was ordered, on the 7th, one-twentieth of a grain of elaterium three times a day, and a warm-bath three times a week. The bowels were opened by the medicine for a few days, and the œdema diminished in the legs. He complained of a sensation of fulness in the head, and was low-spirited, and the bowels were again confined: the urine was about thirty ounces in twenty-four hours, of sp. gr. 1026, and moderately coagulable. He was ordered, on the 18th, two scruples of compound jalap powder directly, and the elaterium was increased to one-tenth of a grain three times a day, and the mixture continued. He perspired more, and felt rather better; but the bowels were confined; and he was ordered to take every morning a scruple of extract of taraxacum, two drachms of acetate of potash, with half an ounce of decoction of aloes, and an ounce and a half of infusion of senna, continuing the other medicines. His bowels were open twice or three times daily; and he complained on the 18th of vertigo, tinnitus aurium, and tension in the head, for which a blister was applied to the nape of the neck; after which his head symptoms were somewhat relieved, he perspired profusely during the night, and the bowels were freely open: the urine was dingy from red particles, sp. gr. 1022. The morning draught was omitted on the 21st, and a grain of camphor and five of ext. hyosc. given every night, and the elaterium was continued. The œdema remained, but was slight; the bowels were open once daily, and then pretty freely: he had still deafness and tinnitus aurium at times; the urine continued dingy, and depositing red particles, being about forty ounces in twenty-four hours, of sp. gr. 1017, and more coagulable. The bowels were again confined on the 4th of August, requiring the further addition of a purgative; and, at his own request, he left the hospital on the 9th of August.

#### CASE 20.

##### *Elaterium—Antimony—Great Relief.*

JOHN GILLMAN, aged 63, admitted August 3, 1842: a short strong-made man, now rather emaciated; a sailor for the first half of his life; since about 33 years of age, a cooper; is married; has been temperate, and has enjoyed very good health in all kinds of climate; never having had gout, rheumatism, or scarlatina, or any paralytic or neurotic affection. About four years ago was much

exposed to alternations of temperature; and after some feelings of *malaise*, he found his lower extremities beginning to swell. This did not diminish, and he was admitted into the hospital under Dr. Babington; and, after a month, left, quite well. He was recommended to drink mild gin-and-water, as beer made his urine high-coloured, which was passed in usual quantity, and he was not called up to micturate. He continued pretty well till six months since, when he broke his ribs by falling into a ship's hold, and he then became an out-patient. For the last nine weeks he has been ailing, and attributes his illness to getting cold, as he was exposed to wet at that period; and he remained indisposed till three weeks ago, when his legs began to swell; and this has increased, disappearing however at night: he also had much cough, to which he is liable in winter. During this last illness he has been called upon to micturate three or four times in the night, and his urine has been passed in less quantity; and at present his countenance is rather distressed; his tongue furred, pale, and moist; the chest is resonant on percussion, and some mucous and sonorous râles are heard towards the base of both lungs: the respirations are twenty-eight in the minute: and he has troublesome cough, with mucopuriform expectoration. The skin is dry, perspiring very slightly even on exertion: the legs are very œdematous and swollen: the abdomen is not enlarged: he has but an indifferent appetite: the pulse is 88, regular, rather feeble: the bowels open regularly: the urine passed in twenty-four hours about fifty-six ounces, the sp. gr. being 1008, and moderately coagulable by nitric acid and heat. He sleeps indifferently, being called three or four times to micturate: complains of pain in the head; is very low-spirited, and feels weak and languid. He was put on low diet; and on the 4th was ordered to take one-eighth of a grain of elaterium three times a day, and twenty minims of vin. ant. pot. tart., thirty minims of tinct. hyosc., and six drachms of liq. ammon. acet., with a little water, three times daily; under which the œdema diminished, and the bowels were freely acted on: and on the 6th, the cough being very troublesome, and the patient feeling very weak, the elaterium was omitted, and five grains of pil. conii comp. was taken three times a day: after which the cough was relieved, the appetite improved, and he perspired slightly: the urine increased to between seventy and eighty ounces daily, the sp. gr. being 1007, and the coagulability diminished: the œdema was scarcely perceptible, and gradually disappeared entirely.

On the 10th he was allowed a mutton-chop daily; and on the 20th complained of severe pain in the head; but his spirits were rather improved, though he complained of great weakness. A blister was applied to the nape of the neck, and the pil. conii comp. taken at

bed-time only; and the following mixture prescribed instead of the former:—spt. æth. nit. half a drachm, tinct. hyosc. twenty minims, to be taken three times a day in mint-water.

On the 23d, the head being easier, and the pulse 86, regular and feeble, ten minims of acid. nitr. dil. and an ounce and a half of inf. gentian. comp. was taken three times a-day, and the pills continued at bed-time; after which he slowly improved, gained strength, and the cough entirely left him. He had no remains of the œdema; but his aspect was still anæmial, pallid, and flabby, and the urine but slightly coagulable, and very abundant, when he left the hospital on August 30.

#### CASE 21.

##### *Venesection—Elatarium—Antimony—Great Relief.*

GEORGE MOORE, aged 22, of moderate height, brown hair, and light eyes, formerly a cabinet-maker, of temperate habits, and having fared indifferently. Two years ago, from want of employment in his trade, he left it, and became a maker and hawker of umbrellas, in which occupation he was frequently exposed to wet and cold, which occasionally obliged him to lay by for a day or two after catching cold, resuming his employment soon afterwards. This state of things continued till three weeks ago, when he was similarly exposed, and felt general uneasiness, pains in the head, and sore-throat. He was treated medicinally; but the symptoms continued, the pain in the head increased, and the glands of the neck became swollen and tender: after some days he was bled (nine days ago), with relief to the head. On the following day the swelling in the legs, ancles, and loins appeared, and became worse. These symptoms continued till his admission on July 6th.

For the last three days his urine has been passed in less quantity than usual, and is high-coloured; and since the swelling began he has had pains across his loins; the tongue is yellowish; the skin dry; he does not sweat at all: the urine is acid, slightly coagulable by heat and nitric acid, the sp. gr. being 1016: the pulse rather frequent, with a little sharpness: the bowels are rather confined; and he complains of general fulness and uneasiness. He was, on the 7th, bled to the amount of twelve ounces, and was ordered six drachms of liquor. ammon. acet. with half a drachm of vin. ant. tart. three times a day, with one-twentieth of a grain of elatarium; and a warm-bath was ordered twice a week: the bowels were freely opened; and he felt relieved of the tension and general uneasiness by the bleeding: the urine increased in quantity, and the œdema diminished; but the bowels becoming confined, he was ordered, on July 11th, two scruples of pulv. jalap. comp., which acted twice

and the elaterium was increased to one-tenth of a grain, under which the bowels were open only once on alternate days. He complained of feeling very weak after the third bath, which was therefore omitted: the œdema had quite disappeared on the 13th. He did not sweat, but the feet were moist; and he was passing between sixty and seventy ounces of urine daily, of sp. gr. 1014.

On the 15th, the elaterium was increased to one-fifth of a grain three times a day; and it was found necessary to give occasionally 15-grain doses of pil. colocynth c̄ calomel, or a strong senna-draught, by which the bowels were freely opened. Continuing the mixture, he improved, having slight œdema occasionally about the ankles; micturating generally twice in the night, and feeling much better in his general health: the urine was rather less in quantity than last mentioned, the sp. gr. being 1017, and it was but slightly coagulable.

On Aug. 4, as he complained of nausea, the elaterium was omitted, and the effervescing mixture prescribed, with the colocynth pills, as required to regulate the bowels.

On the 9th, the nausea having left, he was ordered to take ten minims of dilute nitric acid, in infusion of gentian, three times a day; under which he continued improving, perspired a little, and there was no œdema on the 15th of August, when he left the hospital, the urine being still very slightly coagulable.

The following observations were made by Dr. Rees on the blood of this patient:—

*Serum*: Specific gravity, 10·25; containing, urea, 1·25.

Albumen, 72·00; Urea, 1·25 per 1000.

*Whole Blood*: Water . . . . . 782·86

Solids of serum . . . . . 73·14

Fibrine and globules . . . . . 144·00

#### CASES IN WHICH ANTIMONIALS CONSTITUTED THE PRINCIPAL REMEDY.

In the following cases, antimonial preparations, almost invariably in the form of potassio-tartrate of antimony, were employed: the same remedy was, indeed, exhibited in nearly all the cases in which elaterium was used, though not always at the same time. In those which immediately follow, venesection was also employed: the relief which was thus obtained must be judged of from the reports of the cases themselves.

I.—CASES IN WHICH VENESECTION WAS EMPLOYED, AS WELL AS  
ANTIMONIALS.

CASE 22.

*Antimony—Venesection—Great Relief.*

WILLIAM INGHAM, aged 44, admitted August 29; a rope-maker, living at Rotherhithe; short, but large-boned, though not muscular, with rather fresh and fair complexion: is married, and has eight children: has been rather intemperate at intervals: the beverage in which he has indulged has been beer, with very little spirits: has been much exposed to vicissitudes of weather: at times has endured great privations, but generally fared tolerably: has enjoyed good health: had small-pox, measles, scarlatina, and whooping-cough, when a child; and slight gonorrhœa once, when he was slightly salivated, after taking mercurials for about a week: has been rather thick-sighted, and cannot see well by candle-light: he has not, till since the present illness, had nocturnal calls to micturate. About seven or eight weeks before admission he had a fall, when he strained himself in the loins, with consequent pain for a day or two; and about nine days before his admission he found his scrotum and legs much swollen. The œdema soon extended to his face, and became general; and he felt generally uneasy, had anorexia, thirst, and pain in region of right kidney.

At present, in addition to the above symptoms, the skin is of natural temperature, moist, and soft: breathing rather short; respirations twenty in a minute: slight cough; no expectoration. On the right side of the chest there is dulness on percussion, from an inch and a half below nipple downwards, and extending posteriorly: respiratory murmur is faint, rather distant towards the back in the right infra-mammary region, as well as laterally and posteriorly on right side; otherwise natural: heart's impulse is feeble; sounds distinct, but faint: pulse 62, bounding, but compressible: abdomen is somewhat tympanitic, but very œdematous: tongue is moist, whitish, coated posteriorly: conjunctivæ rather pale; prolabia and cheeks not much so: bowels generally regular: micturition rather painful, from œdema of the penis: saliva neutral: urine, sp. gr. 1011, light-coloured, becomes pinkish by acid, and slightly opalescent, as also by heat. Ordered, julep. ammon. acet. with half a drachm of wine of potassio-tartrate of antimony three times a day, and two scruples of comp. jalap powder directly.

On the 30th he was ordered to be bled to ten ounces, and to continue the medicine.



He was much improved on Sept. 14, when his appetite was good; pulse 80; œdema much diminished; bowels regular; complexion less anæmiated. He was ordered a quarter of a grain of potassio-tartrate of antimony, one grain of camphor, and three of ext. of hyoscyamus, every night, and to continue the mixture. At this time his urine was 84 ounces in twenty-four hours; sp. gr. 1011; and very slightly coagulable.

On the 22d, his respiration was much relieved, and there was no cough. There was only slight œdema in the legs, and he was in all respects better.

Urine, 70 ounces in *twelve* hours, just clouded by nit. acid, and unaltered by heat; sp. gr. 1011.

The same treatment continued.

On the 28th, he was almost free from œdema, and looking much better.

Urine, 104 ounces in twenty-four hours, of the same re-action as before; sp. gr. 1015.

On the 30th, he had slight dyspnœa on exertion: he slept well, and had micturated three or four times nightly: he had a slight catching pain about the situation of the arch of the colon, on taking a deep breath: there were no abnormal sounds about the chest: bowels regular: appetite very good.

Urine, 144 ounces in twenty-four hours, unaltered by heat or acid. Was presented.

Although this patient's symptoms, at the time of his admission, were sufficiently formidable, yet his case was, upon the whole, one which from the first held out greater encouragement for the employment of remedies than most which we meet with; for the history of the disease, as well as the condition of the urine (which, although of low specific gravity, was abundant, and contained lithic acid, as shewn by the pink colour, produced by nitric acid), led us to suppose that the disease in the kidney was of but recent origin, and encouraged the hope that disorganization had not yet commenced.

#### CASE 23.

##### *Antimony—Venesection—Great Relief.*

EDWARD STAMFORD, aged 45; ægrot. four months; a bony, muscular man, with light hair, grey eyes, and tranquil countenance, and rather sallow; leading a sea-faring life in the coasting-trade; married, having three children; accustomed to drink porter to the extent of three or four pints daily, but no spirits, and having for the most

part enjoyed good health: suffered from rheumatism eight years ago, and from scarlatina twelve years ago, and has had hæmorrhoids to slight extent: has worked hard, and been much exposed to weather and its vicissitudes: never took much mercury, but was once salivated after taking mercury for five days for rheumatism: has had gonorrhœa, never syphilis: has been in the habit of perspiring considerably when at work, but not since his illness: was never in the habit of micturating nocturnally till within the last two months, during which time the secretion of urine has been much more abundant than previously. Four months ago, having been cast away at Hastings, and much exposed to wet and hardship (but not want of food), his legs and ankles became much swelled; having for about a month previously found them slightly enlarged. He was free from pain, but ceased to perspire; and has had, since that occurrence, shortness of breath on exertion.

At the time of admission, he complains only of the swelling of his extremities: the chest is resonant: respiration natural: heart's action regular: pulse 86, regular, rather small, compressible: skin is rather harsh and dry: a scar exists on the left side of the thorax, the result, he says, of scurvy when at sea: and on his left leg he has an extensive nævus maternus, very slightly elevated above the surrounding surface. The face is sallow, not very pale: conjunctivæ bloodless: tongue whitish: saliva rather acid: bowels regular.

Urine light-coloured; slightly coagulable by heat, more so by nitric acid; neutral; sp. gr. 1009.

Ordered, half a drachm of compound jalap powder immediately, and julepum ammon. acet. with half a drachm of wine of potassio-tartrate of antimony every six hours.

On the 2d of Sept. he was ordered to take a quarter of a grain of potassio-tartrate of antimony, with four grains of extract of hyoscyamus every night; to continue his mixture, to repeat the powder occasionally, and to be bled to eight ounces.

He slowly and gradually improved; the dyspnœa diminishing, and the nocturnal micturations becoming less frequent. The same treatment was continued throughout; and on the 5th of October he had slight œdema of the legs, his strength was improved, and he only felt the dyspnœa upon exertion. His tongue was clean and moist; his pulse 72, regular and rather feeble; and his countenance less anæmial.

The urine was abundant, being never less than 63, and on one occasion as much as 106 ounces in twenty-four hours: the sp. gr. was uniformly 1010.

On the 5th of October, when he left the hospital, it amounted to 88 ounces in twenty-four hours, was slightly coagulable by nitric acid, and scarcely so by heat.

## CASE 24.

*Venesection—Mercurials—Antimony—Tonics—Relief.*

JAMES LYNCH, aged 26; a porter in Spitalfields Market, with dark hair and eyes, of moderate height and spare frame: states that he was formerly strong, and enjoyed very good health; but has been accustomed to drink five or six pints of beer daily, and spirits occasionally: he continued well until three months ago; when he was exposed more than usually to wet and cold for some time: he soon after felt pains in the head, with loss of appetite and thirst: he perspired a good deal, and continued indisposed till eight weeks since, when his legs began to swell; and this was accompanied by shortness of breath: this swelling increased, but he did not observe his abdomen to be larger than natural: he was called upon twice or three times in the night to micturate: his water was more scanty, and of a lighter colour than usual. He had no medical aid; and continued so till Sunday last, when the swelling increased, and extended up to his scrotum: he felt much worse than before, and was confined to his bed; where he remained till his admission into the hospital on June 29th.

At present he is pale, and his countenance rather distressed: the tongue white, with deficiency of appetite, and thirst: the chest resonant anteriorly and posteriorly, excepting below a line on a level with the lower angle of the scapula, where there is dulness and distant respiration. The sounds of the heart are heard all over the chest: the second sound is more prolonged and clearer than natural: there are marks of cupping about the situation of the heart, which he states was done, for some affection of the chest, three or four years since; and the superficial veins of the thorax are congested: the pulse is 85, jerking, compressible: he has had syphilis, for which he took mercury: the lower extremities are cedematous, the œdema extending to the scrotum and penis: the urine passed in twenty-four hours is thirty ounces, of a specific gravity 1010, and moderately coagulable by acid and heat; and he has two or three nocturnal calls to micturate: the bowels are confined. He was ordered to take six drachms of acetate of ammonia, in water, three times a day, and one-sixth of a grain of elaterium and ten grains of compound jalap-powder directly, which produced several loose evacuations. He had a troublesome cough, with slight mucous expectoration; and was ordered, on July 2, a grain and a half of hydr.  $\bar{c}$  cretâ and three grains of Dover's powder night and morning. The urine increased to fifty ounces on the 5th of July, the sp. gr. being 1008: the œdema was diminished; and he felt, upon the whole, better: but on the 6th complained of chills and pain in the loins; and twenty minims of antimonial-wine were added to each dose of the mixture.

On the 8th, the pains had extended to the right arm; the œdema continued diminishing; and he passed less urine, of the sp. gr. 1010, and moderately coagulable. The powder was ordered to be taken three times a day. A blowing sound was now heard to the right of the left nipple, synchronous with the diastole of the heart, and heard also in the course of the ascending aorta; but in other parts the sounds were clear. The powders were omitted on the 12th: there was no œdema: but on the 18th, complaining much of pain in the arm and loins, he was bled to eight ounces, with relief to the pain: the urine had then gradually increased to seventy-five ounces in twenty-four hours, of sp. gr. 1008, and it was less coagulable: the œdema was slight in the legs during the day, disappearing at night; and on the 26th he had slight epistaxis, which was followed by relief to a pain in the head, which had existed for a day or two; that in the loins still continuing; and the bowels were pretty regular: the epistaxis recurred twice or three times, and he had pain in his limbs. He was ordered pil. plumbi acetatis c̄ opio, night and morning, and twelve minims of dilute nitric acid three times a day, in infusion of gentian. He took only two doses of the pills, but continued the mixture: had no return of epistaxis until the 5th of August, when it was very slight: there was rather more œdema of the legs; and he was passing about sixty-six ounces of urine, the quantity having increased during the last few days, and the sp. gr. diminished to 1007: the skin was perspirable: he had an occasional return of the epistaxis; but improved; complaining, however, of palpitation on exertion, and weakness and stiffness in the left knee, for which the empl. ammon. c̄ hydr. was applied with relief: and there was some enlargement and induration felt below the ribs in the right hypochondrium.

On the 16th he was ordered twenty-five minims of spt. æth. nit., twelve minims of tinct. ferri sesquichloridi, and five minims of tinct. digitalis three times a day in mint-water: and on the 23d, an ointment, composed of equal parts of the ung. iodini comp. and ung. hydr. camph. was ordered to be rubbed over the hepatic region every day; and the compound inf. of roses, with five minims of dilute sulphuric acid, was given three times a day. He went on without much change till Sept. 12, when he was sleeping well, micturating three times nightly: the bowels were open twice or three times daily; the appetite good, with slight thirst; and he perspired but little: the same cardiac sounds were heard as before; viz. a *bruit-de-soufflet*, with the second sound over the aortic valves and in the course of the aorta; and the first sound was rough, in the same situation. There was a diffused tumor occupying the right hypochondriac, the epigastric, and projecting into the left hypochondriac region below the ribs, dull on

percussion, and somewhat tender on manipulation; the dulness reaching as high nearly as the right mamma: the œdema of the legs is less, and is most in the evening. Passes about fifty-five or sixty ounces of urine in twenty-four hours, of specific gravity 1011, and but slightly coagulable: pulse was 106, jerking: slight cough and dyspnoea on lying down in bed; and his general aspect was very anæmial. He went on with little variation or amendment: the urine was on some days more coagulable than on others, and varied slightly in quantity, the sp. gr. being 1012: the pulse was less frequent, being about 90.

On the 21st, a grain of sulphate of iron was added to each dose of the mixture; and another plaster was applied to the left knee, which continued weak and stiff. The tumor did not diminish in size; his aspect continued very anæmial; and the pulse 90, jerking, but compressible.

On the 30th, he had urticaria evanida on the left leg; and the tumor was rather diminished; but the other symptoms continued the same on the 5th of October, when he left the hospital; the urine being still slightly coagulable.

#### CASE 25.

##### *Antimony—Venesection—Great Relief.*

WILLIAM CALLAGHAN, aged 32, a gas-pipe layer, residing at Westminster, native of Ireland: a muscular, bony man, of middling height, with brown hair, grey eyes, and fair ensanguine complexion: has led an intemperate life, drinking both spirits and beer: has been much exposed to weather; and has generally fared tolerably; but was hard-up last winter: has had measles, small-pox, and continued fever, when quite young; and is subject to urticaria after a meal of fish: never had syphilis, but has been subject to rheumatism: otherwise his health has been good: he has been very liable to take cold; and has had varicose veins of the leg and thigh, and the legs have been more or less œdematous during the last two years. About two months ago, he thinks, he observed his belly swelled; but it was not till a month ago that he observed his legs, loins, scrotum, penis, and face swollen and œdematous: he complained of no pain: he continued to work till the time of admission, when the inconvenience of the dropsical condition and pain in the head were his chief complaints: and he is now called to micturate once or twice nocturnally, which he did not before: the quantity was abundant, pale, and passed without difficulty: skin is cool and dry: respirations 21 in a minute: chest resonant on percussion: respiration vesicular, natural, but rather harsh beneath left clavicle: heart's impulse rather augmented, and

the interval rather increased; sounds distinct; first sound not so prolonged as natural: pulse 84, rather irregular, full: tongue clean, whitish: appetite good: urine natural colour, acid, coagulable by heat and acid, copiously flocculent, sp. gr. 1025. Ordered,

Fulv. Jalap. Comp. ℥ij. Ext. Elaterii gr.  $\frac{1}{4}$  st.  
J. A. A. c̄ V. A. T. 6tis horis.

He continued his mixture, with the addition of half a drachm of spirits of nitric æther, till the 7th of September; when, the pain in the head continuing, he was ordered to be bled to ten ounces; after which the pain was relieved for some days.

On the 19th he complained of pain across the forehead, which was most severe towards the afternoon: he had no dyspnœa; and his general aspect was improved: his bowels were confined, unless acted upon by the powders, which were repeated occasionally: micturition was less frequent; but there was no perspiration: pulse 81, small, regular, and compressible: skin rather harsh, but not hot: appetite very good: urine twenty-six ounces in twelve hours, moderately coagulable, becoming pink with nitric acid, sp. gr. 1018.

He continued under the same treatment, and gradually improved in all respects: the pain in the head, however, abated but very slowly, and he was not quite free from it when he left the hospital, which he did on the 1st of October, when he had scarcely any œdema, and felt in all respects much better; his urine being about two pints in twenty-four hours, slightly coagulable by nitric acid and heat, the latter causing a precipitation of phosphates.

## II.—CASES, IN WHICH THE USE OF ANTIMONY WAS FOLLOWED BY THE EXHIBITION OF TONICS.

### CASE 26.

*Antimonials—Latterly, Tonics—Great Relief—following an Attack of Gout.*

MARIANNE BROWNE, aged 27, admitted May 25, 1842: a sailor's wife; with brown hair, light eyes; resident for the last five months in London; before that at Portsmouth: has gained a livelihood latterly by washing &c.; and has often been exposed to bad weather: has been in the habit of drinking porter, and occasionally gin.

Has never, to her knowledge, had rheumatism, gout, scarlet-fever, fits, paralysis, syphilis, hæmorrhage, or injury to the loins.

She states that she always enjoyed excellent health until six years ago, when she was laid up for four or five months with 'dropsy of the legs and abdomen, following an exposure to rain: for this she was

tapped eight times, and perfectly recovered. She does not remember any thing further about the urine at that time, than that it was very scanty.

Her present illness came on so gradually, that she is unable to look back upon its commencement: but for two or three years past she has been getting out of health, and weak, experiencing occasionally headaches, pains in the abdomen, thirst, feverishness, &c.; but she has no recollection of the colour or quantity of the urine, which was not habitually passed in the night. For a year past, she had had wandering pains and cramps in the fleshy parts of the arms and legs, and sudden startings of the limbs. Five weeks ago, the legs began to swell, and the eyes, towards morning, became almost closed. The abdomen has swelled within the last day or two. She has often lately had attacks of giddiness and pain in the head; but no affection of any of the senses. Her mouth has not been made sore by medicine.

At present the face is large and puffy, especially around the eyes, and moderately ruddy: intellectual powers dull (apparently naturally): senses perfect: œdema of the feet and legs, as far as the knees: slight œdema and tenderness of the loins: skin smooth, soft, and rather dry: tongue moist, not pale, pretty clean: appetite good: thirst: pulse 92, regular, rather small and wiry: respiration 18, easy: saliva neutral.

No abnormal sounds in chest.

Abdomen prominent; resonant on percussion: obscure fluctuation: integuments loose and flabby.

No rigidity of radial artery, nor enlargement of the superficial veins.

In the progress of this case, the œdema gradually disappeared, and the skin became warm and moist; though, until June 22, when she became the subject of gout, the other symptoms continued; namely, debility, nocturnal micturition, occasional headache, giddiness, cramps, with a confined state of the bowels.

On June 6, the catamenia were present; and it was noticed that there was audible a systolic murmur, most distinct about left nipple, extending towards the aorta, and slightly in the axilla.

On June 22, gout attacked the great-toe; and, after a week's duration, left her much improved in health: and, on July, 2 she left the hospital of her own accord.

The urine, as to specific gravity, varied generally from 1011 to 1012, but on one occasion was 1021: in this instance, forty-two ounces were passed, and the quantity of albumen was increasing; but in another instance, when twenty-eight ounces were passed, the specific gravity was only 1009, the quantity being nearly similar. As

to the quantity of albumen, it varied much: it was however noticed, that during the attack of the gout it increased, but upon its subsidence there was an evident diminution.

The treatment, with the exception of the time during which she suffered from gout, was purgative and diaphoretic; and latterly, tonic.

CASE 27.

*Antimonials—Tonics—Great Relief.*

THOMAS LILBURN, a seaman, aged 32, of moderate stature, sandy hair, and fair complexion, a native of Scotland; formerly very muscular; now much reduced in flesh. Before four years of age he had measles and small-pox, followed by porrigo of the scalp, which lasted two years; and has since been healthy. His father died, when he was eight years old, from an accident. At thirteen he went to sea; and about two years after was very ill from constipated bowels, having no evacuation for eight days: his bowels are habitually constipated. Four years afterwards he was much exposed to wet for some hours on shipboard, without change of clothes; and was laid up for a week with cough and dyspnoea; but did not observe scantiness of urine, nor was he called up in the night to micturate. The cough and dyspnoea shortly left him, and he remained quite well. Eight years since, after bathing, he had an attack of rheumatism in all his joints: he was laid up with this for ten months; and four years afterwards had a second attack, which has permanently affected his right knee, which cannot be straightened; and his right ankle is also painful: soon afterwards, he had an attack of gonorrhoea; which was not attended to, and left a stricture of the passage: and since that time he has been obliged to rise in the night once or twice to micturate. He was also attacked with inflammation of the eyes, for which he took mercury largely. Last summer he had another attack of rheumatism, and took mercury; and at the time took cold, and suffered from periosteal pains of the limbs: he recovered partially, and was admitted into Lazarus Ward, under Dr. Babington, for the same complaint. The urine was examined, and found to be quite normal: it continued of the same appearance as usual till a fortnight ago, when he first observed it to be rather dingy, and depositing a sediment on standing; and he last week perspired less than usual during the night, and that partially; and micturated twice or three times; and on one occasion his urine passed *guttatim* from him during the night: he had a blow in the loins some years ago; and, when under Dr. Babington, was cupped in the loins for pain in the region of the kidneys: and has, during the past week, had nausea and occasional bilious vomiting. He was



transferred into Job Ward on June 9th. His feet and ankles are occasionally cedematous; his face puffy; and he complains of constriction at scrob. cordis: the skin is dry, and not perspiring at all: the chest is resonant on percussion, and respiration vesicular: the heart's action is heard extensively diffused over the chest, the interval between the first and second sounds being prolonged: the pulse 60, moderately full, compressible: the tongue is rather whitish: the urine is rather dingy, and acid; about thirty-four ounces being passed in twenty-four hours; sp. gr. 1016, and very coagulable, both by heat and nitric acid: the bowels are rather confined. He was ordered low diet, and to have a warm-bath three times a week, and to take acetate of ammonia with fifteen minims of antimonial wine three times a day.

On the 11th, the bowels were confined; and he was ordered five gr. each of pil. hyd. ext. colcynth. comp. and pil. galban. comp., and six drachms of castor-oil in four hours afterwards; and an enema of house-medicine was given in the evening; after which the bowels were very freely evacuated: he perspired slightly during the night, but sleeps indifferently: and on the 14th the sense of constriction and puffiness of his face had left him; and the cedematous condition of the ankles was evident only after being up during the day: the urine was rather diminished in quantity; and the sp. gr. was 1018.

On the 14th, he was ordered one-sixth of a grain of elaterium and two scruples of comp. jalap-powder, which acted four times. He improved gradually: the urine became much less coagulable: the skin more perspirable; but the bowels were confined: there was no cedema, excepting in the ankles after being up. He repeated the elaterium and jalap on the 17th, which acted freely; and he felt very much better: the urine was then, thirty-five ounces, clear; the sp. gr. 1020; and it was only slightly coagulable: it increased in quantity to forty ounces in twenty-four hours; and the sp. gr. was then 1015: the cedema was more permanent in the ankles: he perspired very slightly, or not at all: the bowels were confined: and the elaterium was repeated on the 21st, with advantage.

On the 23d, the baths were omitted; and on the 25th he was ordered fifteen minims of the dilute nitric acid, with a drachm of syrup, and one ounce of infus. gentian comp., three times a day. He was not so well after this: there was more cedema in the legs and ankles: the urine, on July 2, was sixty-seven ounces; its sp. gr. 1014: and he was ordered six drachms of the acetate of ammonia three times a day in water.

On the 5th, there was less cedema, and he felt less languor: the urine contained some red particles, was less in quantity, and slightly

coagulable. He was ordered an ounce each of liquor ammon. acetatis and of infus. diosmæ, every six hours. His general appearance improved, and he perspired a little: the urine increased, with variation, to seventy ounces, which he passed on the 19th, when the sp. gr. was 1015, having been a few days previously 1017; and there were no red particles in it: a blister had been applied to his knee, which enabled him to depress the heel rather more than he had done, and a splint to the back of the leg: there was less œdema in his legs and ancles; but he complained of vertigo and occasional pains in the head: and, the bowels being confined, he was ordered one-tenth of a grain of elaterium three times a day, which produced several watery evacuations daily, with relief to his cerebral symptoms. All medicines were omitted on July 25th: his general health was much improved: his urine was only about thirty-two ounces daily; the sp. gr. ranging from 1016 to 1019, and slightly coagulable by heat and acid.

On the 27th, a grain and a half of sulphate of zinc, and three grains of ext. anthemidis, was ordered three times a day. His general appearance and health continued improving: the urine remained slightly coagulable by acid and heat; about forty ounces being passed in twenty-four hours; of sp. gr. 1017: and the œdema had quite left his feet and ancles, excepting when he had been walking about, when it was very slight, and scarcely perceptible. He had not regained any motion in the affected knee; and, on July 30, left the hospital.

#### CASE 28.

##### *Antimonials—Chalybeates—Relief.*

MARIA SANGER, aged 38; admitted May 18, 1842; an unmarried woman, with brown hair and eyes; narrow receding forehead; short, and strong-built: in her occupation, as servant at a public-house, she was generally warm in-doors, until the past winter, when she was often exposed to rain and cold: whilst at the public-house, for four years, was liberally supplied with beer and spirits, especially gin, when she chose to ask for it.

States, that she has never, to her knowledge, had a blow or fall upon the loins, scarlet-fever, rheumatism, fits, paralysis, or hæmorrhage; and that her health, with the exception of a severe and protracted attack of typhus-fever, twelve years ago, and winter-cough, remained good until last November; when, being often exposed, for days together, to rain, and the effects of remaining in the wet clothes, she experienced an aggravation of her cough, with pain in the chest, and dyspnoea; and the catamenia, which were present at the time, stopped, and have not since appeared. Shortly after this, she observed that her feet were slightly swollen towards morning; but this symptom

left her, and returned again a month ago. During the whole winter she has suffered, night and day, from aching pains and cramps in the larger joints, and also in the muscles of the arms and legs; and occasionally has had momentary twitches in the right side of neck, and cancer of mouth and fingers. The only notice taken of her urine was, that it was passed more frequently than usual, especially in the night. Hearing, taste, feeling, have been unimpaired; but the sight of the right eye has been imperfect for two or three years.

At present, the face is large, coarse, and congested: body not emaciated: eyes glistening, with slight oedema around them, and apparently of sclerotic conjunctiva: skin moist and supple: oedema of feet and legs, as far as knees: tongue smooth, moist, and pretty clean: thirst: good appetite: saliva neutral: frequent dry cough: pulse 60, with prolonged heaving beat, and occasional irregularity: respiration, wheezing, 24: right pupil sluggish and dilated: left contracts well: jugulars turgid, but not pulsating: no rigidity of radial artery.

Chest resonant throughout: respiration loud and coarse, with sonorous rattles: prolonged wheezing expiration, and emphysematous crepitation in parts.

Heart's impulse and precordial dulness not increased: both sounds loud, especially the second: no bruit heard.

Urine clear, and amber-coloured; acid; sp. gr. 1013; a few flocculi fall, after heat: nitric acid gives a pinkish tint, and lowly clouds the urine.

M. Salin  $\bar{c}$  V. A. P. T. m xx. 4tis horis.

Camph. gr. ij.

Ext. Hyosc. gr. vi. o. n.

On the 21st, the quantity of urine was fourteen ounces; clear; neutral; sp. gr. 1008: nitric acid gives a pinkish tint, but no precipitate.

On the 23d, the oedema had left the feet.

On June 9, her health seemed improving; and, occasional cramps being the only subject of complaint, she was ordered to take sesquichloride of iron, with the infusion of calumba: and this medicine she continued to take till she left the hospital, June 30, at her own request, improved in health and strength, with a perspirable skin, and free from dropsy, cramps, or nocturnal micturition.

Urine throughout the case varied much: its sp. gr. ranged between 1006 and 1007: the albumen generally scanty; sometimes entirely absent for three or four days together, and once excessive, without any apparent relation to the course or security of the symptoms: the quality rather large, and corresponding, but not invariably, with the lower specific gravities.

## CASE 29.

*Anasarca of some months standing—Albuminous Urine—Antimony  
—Mineral Acid—Relief.*

JOHN KNOWLES; aged 61; a widower, with one child; by trade a hair-sorter; living and working in Thames Street; of middling stature, with light hair and eyes, and fair leucophlegmatic complexion: has lived well, and drunk about three or four pints of porter daily, and occasionally to excess, taking some spirits also; and has enjoyed general good health. He had small-pox when a child: never had a blow in the loins; but, four or five years ago, slipped on the base of his spine, which made him stiff for a few days: has had syphilis several times, and has been salivated three times: about ten days elapsed before the mercury affected his gums: has right scrotal hernia of twenty-one years' duration, which is easily reducible: in his employment, perspired very much: has not been exposed to wet and cold: is subject to bleeding-piles; and has been in the habit of passing one or two table-spoonfuls of blood once in two or three weeks: his intellectual and sensorial functions appear good; and he has no vertigo, or pains in the head: has been in the habit of micturating two or three times in the night as long as he can remember, especially after slight excesses in drink. About the first week in last January, he lost his appetite, became very thirsty, and perceived his wrists were swollen and pitted: this soon appeared in both hands and feet; and gradually in the legs, thighs, scrotum, loins, and abdominal parietes, which became very hard; and the side of his face on which he lay was swelled in the morning: he had had cough and shortness of breath for a fortnight before the first appearance of any swelling; and was admitted into Lazarus Ward on Feb. 24th; when he had slight cough and dyspnœa: the urine, which was abnormal in quantity, was moderately coagulable; and there was effusion into the left pleural cavity: his skin was perspirable; and he sweated profusely after the warm-baths which were ordered: and there were symptoms of bronchitis, to a small extent, on auscultation. Under the use of the warm-bath, with acetate of ammonia and antimonials, with an occasional aperient, he has lost a great proportion of the œdema: his cough is very slight, as well as the dyspnœa; and he has had dizziness and pains in his head since admission. He was removed into Job Ward on May 19th: his appearance was then leucophlegmatic, but with less pallor than he had; his cheeks being slightly tinged with red hue: lips are not anæmic; the eyes are pearly-looking, and very watery: there is slight œdema of the feet, ancles, legs, and loins; and indistinct fluctuation is observed in the most dependent parts of the abdomen: the chest is very resonant on percussion: at the base of the lungs, fine moist crepitation is heard:

and anteriorly, a fine drier crepitant ronchus is occasionally heard, resembling that of emphysema: in other parts, respiration is vesicular: respirations are twenty-four in a minute: the tongue is clean and moist, but flabby: the saliva acid: he sleeps very well, but is not drowsy: the skin is warm, not harsh; and he perspires occasionally: the bowels are regular: the urine acid; about forty-eight ounces in twenty-four hours; of sp. gr. 1011; and of a pale straw-colour, and depositing moderate flocculent precipitate on the addition of nitric acid or exposure to heat: the appetite is good: the action of the heart generally regular, and the rhythm and sounds normal: the pulse 80, at times irregular. Was ordered, on May 20, the acetate of ammonia mixture with half a drachm of antimonial-wine every six hours, and to use the warm-bath twice a week; and he was ordered low diet with sago. Under this treatment, and remaining in bed, the oedema diminished, and became very slight; seen only in his legs: he perspired occasionally: was called to micturate twice or three times nightly; and passed about forty ounces of urine, of sp. gr. 1013 or 1014, daily, offering the same appearances on exposure to the re-action of heat and nitric acid; and he gained flesh, and became less anæmial in his appearance: the bowels were regular; and the pulse generally about 78, and more regular.

On the 30th, the dilute ung. hyd. nitratis was applied to the tarsi, which were lippitudinous, with relief; and he got up daily: the respiration was also performed with greater ease and freedom: the urine continued about the same in quantity; was of sp. gr. 1016, and occasionally alkaline, becoming so soon after being voided; when it was necessary to add a little of any acid, before heat produced any evidence of the albumen, which had rather increased in quantity: and he continued much the same till June the 9th; when the bowels being rather confined, and the abdomen flatulent, and the hernia rather troublesome from distention, a carminative senna-draught was given, which produced several copious dark evacuations; and half a drachm of tinct. of ginger was added to each dose of the mixture; and the aperient draught was occasionally repeated, with relief to the flatulent symptoms.

On the 13th of June, he complained of pain in the loins, increased on a deep inspiration; and the urine was pale and rather turbid; alkaline; sp. gr. 1013; and about forty-eight ounces were passed in the twenty-four hours. He was much the same on the 14th of June; and was ordered to take ten minims of dilute nitric acid with one drachm of syrup in the compound infusion of gentian, three times a day. The second sound of the heart, as heard over the aortic valves, was found to be sharper than natural, and was accompanied

by a sort of click: the pulse was 84, fuller and harder, with an occasional intermission. He continued going on without much alteration; perspiring, however, less as the baths were omitted: the respiration was still rather oppressed and hurried; and there was still heard at the base of the lungs the emphysematous crackling, and posteriorly submucous crepitation to a small extent: there was but very slight oedema: and he complained of weakness in the loins.

On July the 18th, he had tenderness over the situation of the right kidney; and some old ulcers were again become sore on the leg; not having been quite healed for several months: they were touched with nitrate of silver, and an ointment composed of equal parts of unguent. zinci and unguent. hydr. nitric oxid, was applied to them: they had hardened edges and a flabby indolent condition. The urine and the general symptoms underwent little variation: the ulcers continued indolent, and indisposed to heal: the red precipitate and iodine-ointment were applied.

On the 24th of August, the nitric acid mixture was changed for the acetate of ammonia with fifteen minims of antimonial-wine, which was given three times a day: after which, the skin was moister.

About Sept. 12th, he was micturating three or four times nightly: the urine was 1014; about fifty ounces in twenty-four hours; and was not quite so congluable: and there was oedema of the feet and ancles to a small extent, though most in the ulcerated legs: the ulcers were a little smaller, but very indolent: the bowels were regular: the pulse 96, regular: the countenance was much improved; and he was fatter, and looking and feeling stronger. The urine continued about the same in quantity, and the sp. gr. increased to 1018, and there was rather less albuminous deposit when re-agents were applied. The ulcers improved a little in appearance; and the oedema was very slight; and the pain in the region of the kidney had left him by Oct. the 1st: he still had dyspnoea on exertion; and there were heard occasional bronchial ronchi posteriorly. He then left the hospital.

#### CASE 30.

##### *Antimonials—Tonics—Little Alteration.*

ELIZA WEBB, aged 30; admitted June 8, 1842: a short, slight, fair person: resident for the last ten years in London as a milliner, and accustomed often to go abroad in all weathers: she has borne one child; and since then, within the last twelvemonths, miscarried three times, the last time a week ago. At the second miscarriage there was profuse flooding, but scarcely any at the others: diet has been good; porter at her meals, and occasionally gin.

Has never, to her knowledge, had scarlet-fever, injury to the loins, paralysis, fits, gout, syphilis, or imperfection of any of the senses.

When seven years old, was very severely burned in the body and limbs; and was two years before complete recovery.

Three years and a half ago she had an attack of jaundice, with rheumatism, and severe pains in the chest (for which blisters and leeches were applied to the sternum), succeeding an exposure to rain.

She quite recovered from this; and remained in tolerable health until eighteen months ago, when, being at the time pregnant, both legs began to swell, without any other assignable cause, and she was gradually becoming "weak and out of health." After labour, the swelling of the legs subsided in some degree; but towards morning the face became so swollen, that she was enabled but slightly to open her eyes. She has no further recollection of her urine at this time, than that it was passed more frequently than usual in the night, which still continues to be the case. She has gone on in this way, without the occurrence of any other remarkable symptoms, up to the present time: the dropsy has never entirely left her, although it has been reduced under the use of medicines, which increased the flow of urine, and made her mouth very sore and teeth loose. She has not observed any change in the state of the skin; and has had no giddiness nor startings of the limbs. She has always been subject to cramps in the legs; and latterly they have occurred less frequently than usual: has not complained particularly of pain in the loins; but latterly, for a month together, had frequent daily vomitings.

At present, the face and lips are pale, with slight puffing around the eyes: limbs moderately stout: skin smooth, soft, and normally moist: tongue pallid, indented by teeth; moist; white fur: conjunctivæ milky: intellects and senses unimpaired: legs and thighs soft and loose, pitting pretty deeply: no œdema or tenderness on moderate pressure in the loins: appetite good: bowels regularly open: slight enlargement of the superficial veins of chest: pulse 78, irregular, unequal, and small: saliva neutral.

Respirations 20, easy, and without abnormal sound: heart's action a little irregular; a rather superficial sound, most audible to the right of the nipple, extending upwards, but not into the axilla, accompanies the first; and a rough grating one the second.

Abdomen soft, free from tenderness or swelling.

Pulv. Jalap. Comp. ℥ij. statim.

J. A. A. c̄ Sp. Æth. Nit. ʒfs. et V. A. P. T. ʒxx.

During her residence in the hospital, with the exception of a slight but partial retrocession of œdema, with the occasional occurrence of cramps, with numbness of the fingers, and, in one instance, of febrile urticaria, no material alteration took place in her condition.

The specific gravity of the urine was never above 1016, or below

1010: the average daily quantity was a little under a pint and a half: the high degree of coagulability remained constant throughout.

The treatment was, in the first instance, diaphoretic, and latterly tonic; for which purpose the citrate of iron was tried, but given up in favour of the ammonia-chloride.

VII.—IN THE FOLLOWING CASE, ANTIMONIALS, AND SUBSEQUENTLY CAMPHOR CONSTITUTED THE WHOLE OF THE TREATMENT.

CASE 31.

*Albuminous Urine, with Mental Hallucinations—Antimonials—Great Relief.*

JOS. CRANE, aged 52, admitted May 19: a labourer, working in Thames Street, in an ironmongery-warehouse, living in Spitalfields; of middling stature, and spare frame, with light hair and eyes, and fair complexion; married; with six sons: has not habitually drunk to excess, but occasionally has taken half a pint of rum in the day, and generally about a quart of porter: has lived tolerably well, and enjoyed general good health: was in the navy fourteen years; but has left a seafaring-life for thirty years: had small-pox and whooping-cough when a child: never, to his knowledge, had a blow in the loins; has been subject to lumbago for years: had gonorrhœa thirty-eight years ago, when he took mercury for a week, which very slightly affected his gums: has been subject to griping pain in his left iliac region, at intervals, during the last year or fifteen months, which has been relieved by aperients. When in the West Indies, had hemeralopia: never had any paralytic affection; but has manifested symptoms of disordered intellect lately: has for some years been subject to nocturnal calls to micturate; and his urine has been generally abundant, and free from deposit: formerly used to perspire freely; has been much exposed to draughts and chills.

About the 25th of March, his breath having been short for about ten days, he was attacked with the pain in his left iliac region; for which he applied for relief to a surgeon, and returned to work in a day or two: but in a few days he found his belly swollen, not being able to button his clothes, and the dyspnœa increased. He felt very weak and languid; was admitted into Naaman Ward, when he found his legs were also swollen: his urine was scanty, dingy-looking, coagulable by heat and acid; was observed by Dr. Ba-bington to have some hypertrophy of the right side of the heart; the liver was felt slightly below the ribs: and fluctuation was evident in the abdomen. He was cupped: having been bled before admission; and took acetate of ammonia, with antimonial-wine and



aperients; and the ascites and oedema have very much diminished; and the urine has become more abundant. Has not, he says, perspired since admission: his eyes are pearly and watery: his countenance dingy, rather sallow, but not anæmial: there is still oedema of the feet, ankles, and slightly of the legs and loins: the abdomen is not tense: fluctuation is indistinct: chest is generally resonant, rather dull towards left base posteriorly, respiration accompanied by sonorous and sibilant râles: sleeps well: is not drowsy: complains of pain over the left eye and forehead, which he ascribes to his medicine: there is dulness on percussion in the right hypochondriac region, immediately below the ribs: the action of the heart is regular, but the impulse is much augmented, especially on the right side, and is felt below the sternum; and the first sound is harsh, on the application of the stethoscope, just below the third costal cartilage: the pulse is 70, compressible, but rather sharp: he has slight cough, and the respirations are 24 in the minute: the tongue moist, milky-looking: the appetite good, and without thirst: the skin moist and soft: sleeps badly, complaining of pains in the head and forehead: passes nearly 64 ounces of rather dingy urine in twenty-four hours, of sp. gr. 1011, moderately coagulable by heat, and acid. He was ordered, on May 20th, to have low diet, and to take mist. salina, with half a drachm of vin. ant. tart. three times a day. He was delirious during the night; and complained on the 21st of pain in the head, with confusion of intellect, which, he says, occurs after taking the mixture: the pulse was harder and sharper, rather irregular, 84. He was ordered a mutton-chop. On the following day he had slept better, but was very incoherent, labouring under false impressions, continually dressing and undressing himself, and not recollecting where he had placed things. He was called to micturate during the night; passed about 36 ounces of urine in the twenty-four hours, sp. gr. 1013; the cedema was less; the fluctuation not felt; and the medicines were omitted, as he referred his pain to their continuance; but on the following day, as there was no alleviation of his symptoms, it was resumed: the intellectual disturbance continued with variation, but the pains left him: his urine varied in quantity from 47 ounces in twenty-four hours to 42 ounces, which latter quantity he passed on the 2d of June: the sp. gr. then was 1009, and on the former occasion 1015, being inversely as the quantity; and continued moderately coagulable, the deposit being less as the quantity of urine was more: the pulse became fuller, bounding, but compressible, and 90 in the minute: the heart's action was regular, but in the course of the aorta the second sound was harsh and prolonged; and over the position of the valves the first sound was vibratory: the bowels were freely open; and the skin soft, but not perspiring

much: a blister was applied behind each ear. The mental hallucinations and incoherent manner continued; and on the 6th, the bowels being rather confined, a senna-draught was given: the urine passed during the previous twenty-four hours was only 30 ounces, and the sp.gr. 1015. The mental disturbance became less, but his manner and actions were childish: there was slight œdema in the ankles on the 10th of June: the skin subsequently perspired more freely; and his general appearance and manner improved: the urine was rather less coagulable, and, relatively to the quantity passed, was of rather higher specific gravity, the quantity was 75 ounces, the sp.gr. 1015. His manner continued to improve: no intellectual derangement was observed: the œdema rather increased, though slightly; and the bowels were freely open.

On the 20th, passed 60 ounces of urine, of sp.gr. 1011, slightly coagulable: he occasionally wandered during the night: there was no appreciable œdema; and he continued improving till the 1st of July, when he left the hospital: the urine becoming opalescent when heated or on the addition of nitric acid, and depositing a few flocculi: the pulse maintained the same character, though it was rather less frequent.

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CASES IN WHICH TONICS WERE THE REMEDIES PRINCIPALLY EMPLOYED.

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CASE 32.

*Old Renal Disease—Diaphoretics—Tonics—Relief.*

ELIZABETH M'ENNIS, aged 37; admitted June 15, 1842: a pale, squalid, rather emaciated woman; short and slight; dark hair: she has always resided in London, and gained a livelihood by hawking vegetables in the streets and markets; in which she has been exposed to all weathers, and led an irregular and intemperate life, generally taking three or four glasses of gin a-day, besides porter.

She has never borne any children; but miscarried once, eleven years ago. The catamenia have appeared four or five times for the last six years.

She has never had scarlet-fever, fits, paralysis, gout, or injury to the back. For several years past she has had aching pains in the tibiae, shoulders, and over the scalp, accompanied by what appear to have been nodes and sores on the legs, of which large cicatrices remain; but she denies having had syphilis for fourteen years past: the bridge of the nose is somewhat fallen; and there is a nasal sound in the voice: she has two or three times taken mercury; but the mouth has never been made sore.

Eight years ago, she says, she had rheumatic fever; but was not confined to bed: the joints were neither red nor swollen; and the pains were chiefly in the shafts of the bones. Since that time she has never been quite well, suffering from pains in the head and limbs; and, on two or three occasions, large portions of the upper and lower jaws have come away, some time after the extraction of teeth.

Three years and a half ago, she was a patient at the Surrey Dispensary, when her urine was examined by dropping something into it; and she was told she had dropsy of the legs; which increased and remained for several months, when it passed off entirely (under the use, she says, of smoking, which often made her vomit) until a fortnight ago, when she observed her ankles again swelling. The face, for the last year and a half, has seldom been free from swelling, more or less, especially towards morning. The urine, as long as she can remember, has been passed two or three times in the night; and she has observed that it has varied very much in quantity, being sometimes much more, at others less than natural: it has been sometimes dark and muddy: her skin has mostly been dry, and has scaled off the hands and feet: she has had pains in the loins lately, and frequently vomiting, as well as sudden pains and involuntary startings of the legs: has never lost her sight, although it has occasionally been dim: hearing has been always good: occasional vertigo: on several occasions, lately, clots of blood have passed from the nose.

At present, the intellects and senses are perfect: skin dry, and rather rough in parts: legs, as far as the knees, pit considerably upon pressure, and in a less degree the face and loins: superficial veins of the hands, neck, and chest, turgid: arterial impulse of carotids very visible: respiration 24, easy: occasional dry cough: pulse 86, regular, jerking, compressible: coats of the artery are thickened: tongue rather pale, smooth, clear, and polished: appetite good: thirst: bowels rather loose: saliva acid.

Chest resonant: respiration good: large dry crepitation in right mammary region: some irregularity in the heart's action; both sounds loud, especially the second.

Abdomen—considerable dulness on percussion, and passing back toward the spine: no resonance crossing it: no fluctuation.

Pulv. Doveri gr. v. n. & m.

Baln. Tepid. bis in hebdom.

J. A. A. c̄ V. A. P. T.

Under the use of the bath and medicines, the skin became perspirable; but, three days after admission, she complained of pain and tenderness over the frontal and parietal bones, which yielded, after nearly three weeks, to the iodide of potash. The œdema was at first

lessened, and her countenance assumed a more healthy appearance ; but the nocturnal micturition continued.

On August 6th, the cedema returned, and the abdomen appeared, by fluctuation, to contain fluid ; though her healthy aspect remained. The sp. gr. of urine never above 1012 ; and, except on the day of admission, never below 1009 : the quantity passed during the day was generally about four pints, and the degree of coagulability nearly constant.

She was considerably relieved when she left the hospital.

The following observations were made upon the blood and urine by Dr. Rees :—

|                                   |            |
|-----------------------------------|------------|
| Blood : Contained Water . . . . . | 805·71     |
| Solids of Serum . . . . .         | 85·56      |
| Fibrin and Globules . . . . .     | 708·73     |
|                                   | <hr/> 1000 |

### CASE 33.

*Renal Disease of long standing—Stimulants and Tonics very little benefit.*

JOHN HAMMERSLEY, aged 40, a rather spare man, with brown hair and light eyes ; married ; a shipwright ; having had the usual diseases of childhood : he enjoyed very good health till twelve years since, when, in the pursuit of his business during a severe frost, he fell into the water, and for nine months was confined to his room with cough, pain in the chest, and afterwards palpitation, which he had not previously observed. He returned to his work, and continued tolerably well, with the exception of slight similar attacks at different intervals, arising from exposure to cold, until two years ago, when he had a more severe attack : and, not taking sufficient precaution against fresh exposure, three weeks afterwards swelling of the abdomen and lower extremities came on ; which increased till he was admitted into Luke Ward, under Dr. Babington, a year ago. His urine was then increased in quantity, and he was compelled to rise several times in the night to micturate ; and he did not perspire as in health. He was benefitted by the treatment ; and, about last Christmas, left the hospital, the swelling having entirely disappeared ; which, however, on a fresh exposure to wet and cold, returned : and with some medical attention he has been prevented getting very ill, but with little improvement. He never had a blow across the loins ; nor has he had syphilis : has, since his first attack, suffered occasional rheumatic pain in the joints, but not acutely : has not indulged in beer or spirits to excess ; his usual allowance being one pint of porter a day, and in wet weather occasionally a

small quantity of spirits. Was admitted on June 15th into Job Ward: and at present his appearance is sallow: his eyes pearly: the surface dry, but soft: the tongue furred, whitish; the heart's action heard diffused over the chest; and accompanying the second stroke is a blowing sound heard to the right of, and below the nipple, extending upwards about an inch: at times there is a musical sound following this: the second sound is sharp, with a click. There is slight cedema in the loins. The pulse is 80, and rather jerking, but compressible. He passes about thirty-six ounces of clear urine in twenty-four hours, acid, and slightly coagulable by acid and heat, and of sp. gr. 1013. He was ordered two grains of sulphate of iron, and three grains of extract of gentian, three times a day, with an ounce of the compound infusion of gentian.

He complained of palpitation occasionally, especially on exertion or agitation; but went on much the same: the bowels were regular, and the tongue cleaner: and on June 25, was ordered four grains of citrate of iron, with infusion and tincture of calumba three times a day; and the bowels being rather confined, with a feeling of much languor, he was ordered to take *haust. sennæ*, with half a drachm of *spt. ammon. aromat*; and to continue his pills night and morning, and the mixture three times a day; and on the 1st of July was ordered a mutton-chop daily. He was, on the whole, much better, feeling less languid: the skin moist, and more perspirable: he slept well; and the appetite was moderate. As the bowels were rather confined, he was ordered to take half a drachm of compound jalap powder occasionally. The urine continued the same in quantity and quality. He was, on the 6th, low-spirited and languid; and still looked very anæmial. Was ordered to take *julep. ammoniæ*, and to continue his tonic pills; and also a grain of camphor and five grains of *ext. hyosc.* every night. He was somewhat improved in the course of the week, and was less anxious and depressed in spirits: the bowels regular: the skin, soft, unctuous, and with a tendency to perspire: his respiration hurried on the least exertion. Twenty-five minims of *tinct. ferri amchlorid.* were added to each dose of the mixture on the 14th of July. Continuing the use of the ferruginous tonics with bitters, and the administration of two grains of sulphate of zinc, every night, instead of the camphor and hyoscyamus, he made but little amendment; the appetite indifferent; the breathing hurried, with palpitation and depression of spirits: and on the 27th of July, complaining of pains in his head, and great lowness of spirits, was ordered to take the camphor and hyoscyamus at bed-time, instead of the zinc. He had no cedema, excepting occasionally a little in the loins and abdomen: the urine was about the same in quantity, and was more coagulable, and of sp. gr. 1014. On the 30th, he mentioned the existence of purpurous spots on the

legs, which had existed for some time, though he had not shewn them. He was ordered decoct. cinchonæ, with a drachm of the tincture, and half a drachm of spiritus armoraciæ comp., and five grains of sesquicarbonate of ammonia, three times a day; and to continue the pills.

He was very weak, and low-spirited: the bowels were open: and he was ordered a drachm of spt. æth. nit., fifteen minims of tinct. ferri sesquichloridi, and five minims of tinct. digitalis, in peppermint-water, three times a day; and a blister was applied to the sternum: after which he experienced relief to the oppression about the præcordia, of which he complained; and his spirits were better for a few days: the urine contained a deposit of red particles; was less in quantity; sp. gr. 1013, and very coagulable: and he complained of tension across the abdomen.

The œdema in the legs and abdomen increased, and he again felt very languid and depressed: he did not perspire at all, though the weather was warm: his breath was short; and he had cough, with mucous expectoration: the heart's action was more vigorous, and the pulse jerking; and the same cardiac sounds were heard as on admission. He was ordered, on August the 10th, julep. ammoniæ, with forty minims of spt. æth. nit., and two drachms of spt. juniperi comp., three times a day; and a grain of camphor and pulv. scillæ, with six of ext. hyosc., were given every night: after which he felt the fulness of the abdomen relieved; but was in other respects the same; and left the hospital on the 13th of August.

The specific gravity of this man's urine was above 1014; one fluid ounce contained 0.65 grs. of albumen: it deposited lithates, and also retained some in solution.

#### CASE 34.

##### *Albuminous Urine during Lactation—Urea in the Milk—Stimulants and Tonics—Great Relief.*

ANGELINA PORRS; aged 24: admitted August, 1842: a married woman, with dark hair and eyes, and moderately stout; resident in London; habits stated to have been temperate, and her diet for some time past very poor. She has borne two children; the last, which she is at present suckling, five months since: there was no unusual hæmorrhage at the birth: has never miscarried.

Was in the Middlesex Hospital six years ago, for a fourth severe attack of rheumatism: there was then slight pain in the præcordial region; for which, after auscultation, a sinapism was applied.

States, that, excepting *debility*, she remained in her usual good health until after the birth of her child, five months ago; when she

did not recover strength as on the former occasion. Ten weeks ago, swelling first appeared around the eyes, and subsequently in the feet and legs: has occasionally had pain in the loins, but no vomiting: has not at any time had habitual nocturnal micturition, nor observed any thing unusual in the appearance of the urine: perspired freely all the summer: dry cough for the last two months: bowels have been much relaxed lately.

At present, the face bears a ruddy, almost natural, aspect, and is free from oedema: slight pitting in the loins, but no tenderness on pressure there: legs much swelled, their posterior surface being covered with excoriations, from which, until lately, large quantities of fluid have oozed: skin smooth, soft, and perspiring; superficial veins of the chest prominent.

*Chest.*—Percussion good: respiratory murmur general, anteriorly; posteriorly, general sonorous and mucous rattles, on forced respiration and coughing: no resonance of voice: heart's action somewhat irregular, not forcible; sounds loud, clear, and diffused; a decided roughness most audible, to the left of the nipple accompanying the first sound: pulse 94, soft and silky: respiration 22: urine dingy, resembling infus. of tea,  $\text{J xxxv.}$ : sp. gr. 1014: acid, decidedly but not densely coagulable by heat and acid.

This patient had a child at the breast, which she intended to suckle whilst she remained at the hospital: the child thrived, and seemed to be fairly nourished: its urine was not albuminous.

The obviously low state in which the patient was, and which was increased by diarrhoea, under which she was labouring, induced us to place her at once upon a tonic and rather stimulating plan of treatment: she was accordingly ordered aromatic confection with ammonia, in infusion of cusparia; and wine, porter, and meat, were allowed her; under which plan of treatment she steadily improved; the sore in the leg healed; and when she left the hospital, early in October, she was apparently in good health, though rather ensanguine.

A fine specimen of urea was obtained from the milk of this patient, by Dr. Rees.

The milk of a healthy woman was subsequently analysed by Mr. Pearce, who could detect no urea.

The following Case does not admit of arrangement under any of the foregoing divisions: at the same time, it is not devoid of interest, either in a pathological or therapeutic point of view.

## CASE 35.

*Hæmoptysis—Albuminous Urine—Temporary Cure.*

JOSEPH HAYNES; aged 49; of moderate height; thin; with dark hair and eyes; a brush-maker; a widower, with five children; having, with the exception of an attack of what he states to have been "liver complaint" at the age of 21, enjoyed good health: his habits formerly were not temperate, having indulged in drink to great excess for a length of time: for several years he has been deprived, by deficient funds, from following the same practices; and from the same cause has been deprived occasionally of sufficient food.

A year ago, he was under Dr. Bright, in Luke's Ward, for dropsy of the abdomen, legs, and feet: he was greatly benefitted, and left the hospital in one month. His health remained good, with the exception of cough, on exposure to cold in the winter; and which is of yearly occurrence until four months ago; from which time he dates the commencement of the present illness. At that time he was much exposed to cold and wet: he felt chills and general *malaise*; and soon found his legs beginning to swell, followed in a day or two by cough: with the cough he frequently brought up a tea-cupful of blood during the day: epistaxis also was often present: the swelling disappeared towards the morning; and it, with the cough and spitting of blood, became aggravated, at times with some abatement: he also had pain across the sternum and *scrob. cordis*, and considerable shortness of breath, which were relieved by blood-letting: has been getting better and worse, with occasional medical advice, till a month ago, when the spitting of blood became much more frequent, not a day passing without it: besides epistaxis, the swelling has also increased: his urine has not been altered in quantity since the illness, but has been high-coloured at times: he has not been called up in the night to micturate: has never had a blow on his loins, has neither had syphilis, rheumatism, gout, nor scarlatina. His countenance is rather anxious, and pale, and the tongue whitish: has no pain in the head: the chest tolerably resonant on percussion anteriorly, with some harshness of the inspiration and expiration; the latter accompanied with a wheezing sound posteriorly, where is more dulness, with the same sounds more marked. Liver projects below the ribs.

The lower extremities are slightly œdematous; and there is an impetiginous eruption round the lower parts, where there is also some redness with heat.

The urine is rather scanty, loaded with lithates, of sp. gr. of 1025, becoming first clear by exposure to heat; but on the addition of nitric acid becoming slightly coagulated: the bowels open once daily.



Nothing abnormal is observed about the heart's action or sounds; the pulse 94, small, and very easily compressed. Was admitted on the 10th of August, and ordered to have low diet, and to apply a spirit-lotion to the legs; during the course of the day brought up about a tea-cupful of dark blood; excessive epistaxis; and the bowels were not open.

He was ordered, on August 11, two scruples of compound jalap powder, at once; and to take half a drachm of spt. æth. nitr. with acetate of ammonia and camphor-mixture, three times a day, and was bled to the amount of eight ounces: after which the urine contained no lithates; the bowels were opened freely; the redness of the legs was diminished; but he complained of great weakness; and was ordered, on the 13th, to take the compound infusion of roses, with a drachm of magnes. sulph. three times a day.

On the 15th, he expectorated a little more blood, of a more florid hue, with slight epistaxis. The œdema had diminished, and the eruption was disappearing. He continued occasionally bringing up a little blood; but in other respects improved; feeling, however, very weak, and the bowels being freely open, until the 20th, when the urine was 1024, and very slightly clouded by the re-agents. The cough was still present, with the prolonged expiration and dyspnoea, but in a less degree: he was ordered to take infusion of orange-peel, with twenty minims each of spt. armoraciæ comp. and dilut. sulphuric acid, three times a day. He expectorated no blood after this date; but the cough was very troublesome, with slight and frothy mucous expectoration, which were increased on assuming the recumbent position: they were, however, rather less after the application of a blister to the chest. He did not perspire; but the skin was soft: had nocturnal calls to micturate; and, on Sept. 14, the urine was four ounces; sp. gr. 1016, unaltered by heat, and very slightly indeed by acid: and the œdema was scarcely perceptible.

After the 16th, there was no albumen to be detected in the urine; and the œdema had quite disappeared on the 19th; the countenance was much improved; the cough still troublesome, with dyspnoea on exertion: the pulse was 90, small and compressible: and he left the hospital.

This man continued well till November; but then, after sleeping in the open air, in wet clothes, for three nights, he had a recurrence of the cough, dyspnoea, and anasarca: he was, at the end of the same month, admitted into Lazarus Ward, under Dr. Babington, where he died, with well-marked symptoms of renal disease.

In the preceding cases we have, with perhaps tedious minuteness, detailed every particular which seemed to have any reference to the nature of the disease : we have done this in those which were related, chiefly with a view to its pathology ; as we were more anxious to furnish our readers with facts, than with any theories of our own. In those cases, also, which have been reported for the purpose of illustrating the different modes of treatment, we have been almost equally prolix ; as we wished rather to furnish some data by which others might be enabled to estimate the efficacy of the remedies employed, and their applicability to the various phases of this varying disease, than to propound authoritatively any favourite plans of our own.

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The Table which follows needs little explanation : it was designed to shew the comparative frequency of several circumstances which have been assigned as causes for this disease, as well as of several phænomena which are said to occur in the course of it.

( + ) signifies an affirmative answer to the query ; ( - ) a negative ; and ( 0 ) that none was obtained.

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|                                                                  |   | 1.                                                                                                                                                                                                                                       | 2. | 3. | 4. | 5. | 6. | 7. | 8. | 9. | 10. | 11. | 12.                                                                                                                                                                                                                                                                  | 13. | 14. | 15. | 16. | 17. | 18. | 19.                                                                                                                                                                                                                             | 20. | 21. | 22. | 23. |
|------------------------------------------------------------------|---|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|----|----|----|----|----|----|----|-----|-----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-----|-----|-----|-----|-----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-----|-----|-----|
|                                                                  |   | 1. Has been exposed to cold.<br>2. Has used ardent spirits.<br>3. Has had syphilis.<br>4. Has had rheumatism.<br>5. Has had scarlatina.<br>6. Has had gout.<br>7. Has taken mercury in quantity.<br>8. Has taken much diuretic medicine. |    |    |    |    |    |    |    |    |     |     | 9. Has received injury on the loins.<br>10. Has had paralysis.<br>11. Has had amaurosis.<br>12. Had deafness, or tinnitus aurium.<br>13. Has had vertigo.<br>14. Has had spasmodic affection.<br>15. Is now, or has been dropsical.<br>16. Sounds of heart abnormal. |     |     |     |     |     |     | 17. Rigidity of radial artery.<br>18. Heart's action irregular.<br>19. Evidence of venous obstruction.<br>20. Is anæmized.<br>21. Serum milky.<br>22. Crassamentum buffed.<br>23. Crassamentum cupped.<br>24. Urine albuminous. |     |     |     |     |
| Eliza Bennet,<br>Æt. 22.—11. 5. 42.<br>2. <i>Lydia</i> .         | } | —                                                                                                                                                                                                                                        | +  | +  | +  | —  | 0  | —  | 0  | —  | —   | +   | +                                                                                                                                                                                                                                                                    | —   | —   | +   | —   | —   | —   | —                                                                                                                                                                                                                               | +   | 0   | 0   | 0   |
| Sarah Bray,<br>Æt. 32.—5. 11. 42.<br>17. <i>Lydia</i> .          | } | +                                                                                                                                                                                                                                        | —  | 0  | —  | —  | 0  | —  | 0  | —  | —   | —   | —                                                                                                                                                                                                                                                                    | —   | —   | +   | +   | —   | —   | —                                                                                                                                                                                                                               | —   | 0   | 0   | 0   |
| Ann Osborn,<br>Æt. 42.—18. 5. 42.<br>18. <i>Lydia</i> .          | } | +                                                                                                                                                                                                                                        | —  | —  | —  | +  | 0  | —  | 0  | —  | —   | —   | —                                                                                                                                                                                                                                                                    | —   | —   | +   | +   | —   | —   | —                                                                                                                                                                                                                               | +   | 0   | 0   | 0   |
| Maria Sangar,<br>Æt. 38.—18. 5. 42.<br>1. <i>Lydia</i> .         | } | +                                                                                                                                                                                                                                        | +  | —  | —  | —  | 0  | —  | 0  | —  | —   | +   | —                                                                                                                                                                                                                                                                    | —   | +   | +   | —   | —   | +   | +                                                                                                                                                                                                                               | —   | 0   | 0   | 0   |
| Charles Scott,<br>Æt. 32.—12. 5. 42.<br>3. <i>Job</i> . June 13. | } | +                                                                                                                                                                                                                                        | +  | +  | —  | —  | —  | +  | 0  | +  | —   | —   | —                                                                                                                                                                                                                                                                    | —   | —   | +   | —   | —   | —   | —                                                                                                                                                                                                                               | +   | —   | +   | +   |
| James Back,<br>Æt. 35.—12. 5. 42.<br>2. <i>Job</i> .             | } | +                                                                                                                                                                                                                                        | +  | —  | —  | —  | —  | +  | +  | 0  | +   | —   | —                                                                                                                                                                                                                                                                    | —   | +   | —   | +   | —   | —   | —                                                                                                                                                                                                                               | —   | +   | 0   | 0   |
| William Curtain,<br>Æt. 56.—12. 5. 42.<br>23. <i>Job</i> .       | } | +                                                                                                                                                                                                                                        | +  | +  | +  | —  | —  | +  | 0  | +  | —   | —   | —                                                                                                                                                                                                                                                                    | —   | +   | —   | +   | +   | —   | —                                                                                                                                                                                                                               | +   | +   | —   | —   |
| John Wynn,<br>Æt. 25.—13. 5. 42.<br>24. <i>Job</i> .             | } | +                                                                                                                                                                                                                                        | +  | +  | +  | —  | —  | +  | 0  | —  | —   | —   | —                                                                                                                                                                                                                                                                    | —   | —   | +   | +   | —   | +   | —                                                                                                                                                                                                                               | —   | 0   | 0   | 0   |
| John Philips,<br>Æt. 31.—14. 5. 42.<br>1. <i>Job</i> .           | } | +                                                                                                                                                                                                                                        | +  | —  | +  | +  | —  | —  | 0  | —  | —   | —   | —                                                                                                                                                                                                                                                                    | —   | —   | +   | —   | —   | —   | —                                                                                                                                                                                                                               | —   | 0   | 0   | 0   |
| Joseph Crane,<br>Æt. 52.—19. 5. 42.<br>23. <i>Job</i> .          | } | +                                                                                                                                                                                                                                        | +  | —  | +  | +  | —  | +  | 0  | —  | —   | +   | +                                                                                                                                                                                                                                                                    | —   | —   | +   | +   | —   | —   | —                                                                                                                                                                                                                               | +   | 0   | 0   | 0   |
| George Hollowell,<br>Æt. 16.—20. 5. 42.<br>4. <i>Job</i> .       | } | +                                                                                                                                                                                                                                        | —  | —  | —  | +  | —  | —  | 0  | —  | —   | —   | —                                                                                                                                                                                                                                                                    | —   | —   | +   | —   | —   | —   | —                                                                                                                                                                                                                               | —   | 0   | +   | +   |
| John Knowls,<br>Æt. 61.—19. 5. 42.<br>21. <i>Job</i> .           | } | —                                                                                                                                                                                                                                        | +  | +  | —  | —  | —  | +  | 0  | +  | —   | —   | —                                                                                                                                                                                                                                                                    | —   | —   | +   | —   | —   | +   | —                                                                                                                                                                                                                               | +   | 0   | 0   | 0   |
| Sarah Andrews,<br>Æt. 45.—25. 5. 42.<br>13. <i>Lydia</i> .       | } | +                                                                                                                                                                                                                                        | +  | —  | —  | —  | —  | —  | 0  | +  | —   | —   | —                                                                                                                                                                                                                                                                    | —   | —   | +   | —   | +   | —   | +                                                                                                                                                                                                                               | —   | 0   | 0   | 0   |
| Marianne Brown,<br>Æt. 27.—25. 5. 42.<br>16. <i>Lydia</i> .      | } | +                                                                                                                                                                                                                                        | +  | —  | —  | —  | —  | —  | 0  | —  | —   | —   | —                                                                                                                                                                                                                                                                    | +   | +   | +   | —   | —   | —   | —                                                                                                                                                                                                                               | +   | 0   | 0   | 0   |
| William Murphy,<br>Æt. 40.—27. 5. 42.<br>19. <i>Job</i> .        | } | +                                                                                                                                                                                                                                        | +  | +  | +  | —  | —  | +  | 0  | —  | —   | +   | —                                                                                                                                                                                                                                                                    | +   | +   | +   | +   | +   | +   | —                                                                                                                                                                                                                               | +   | 0   | 0   | 0   |
| William Marks,<br>Æt. 28.—2. 6. 42.<br>22. <i>Job</i> .          | } | +                                                                                                                                                                                                                                        | +  | —  | +  | —  | —  | +  | 0  | +  | —   | —   | —                                                                                                                                                                                                                                                                    | +   | 0   | —   | +   | +   | —   | —                                                                                                                                                                                                                               | —   | +   | 0   | —   |
| M. McCarty,<br>Æt. 28.—3. 6. 42.<br>17. <i>Job</i> .             | } | +                                                                                                                                                                                                                                        | +  | +  | +  | +  | —  | —  | 0  | —  | —   | +   | —                                                                                                                                                                                                                                                                    | +   | —   | +   | —   | —   | —   | —                                                                                                                                                                                                                               | —   | +   | 0   | 0   |

| 25. Urine acid.<br>26. Urine alkaline.<br>27. Urine neutral.<br>28. Urine containing lithates.<br>29. Frequent calls to pass urine.<br>30. Blood containing uræa.<br>31. Perspiration acid.<br>32. Perspiration alkaline. |     |     |     |     |     |     |     | 33. Perspiration neutral.<br>34. Saliva acid.<br>35. Saliva alkaline.<br>36. Saliva neutral.<br>37. Number of pulse.<br>38. Number of respirations.<br>39. Sp. grav. of Urine.<br>40. Has had pain in loins. |     |     |     |     |     |     |      | 41. Quantity of urine passed in 24 hours.<br>42. Has effusion into peritoneal cavity.<br>43. Has effusion into pleural cavity.<br>44. Skin dry.<br>45. Skin moist.<br>46. Has had abortion.<br>47. Probable duration.<br>48. Is, or has been subject to sickness. |                |     |     |     |     |     |         |     |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-----|-----|-----|-----|-----|-----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-----|-----|-----|-----|-----|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|-----|-----|-----|-----|-----|---------|-----|
| 24.                                                                                                                                                                                                                       | 25. | 26. | 27. | 28. | 29. | 30. | 31. | 32.                                                                                                                                                                                                          | 33. | 34. | 35. | 36. | 37. | 38. | 39.  | 40.                                                                                                                                                                                                                                                               | 41.            | 42. | 43. | 44. | 45. | 46. | 47.     | 48. |
| +                                                                                                                                                                                                                         | —   | —   | +   | —   | +   | 0   | 0   | 0                                                                                                                                                                                                            | 0   | 0   | 0   | 0   | 86  | 26  | 1004 | +                                                                                                                                                                                                                                                                 | O vi.          | —   | —   | +   | —   | +   | 1 mo.   | +   |
| +                                                                                                                                                                                                                         | +   | —   | —   | +   | —   | 0   | 0   | 0                                                                                                                                                                                                            | 0   | 0   | 0   | 0   | 80  | 20  | 1034 | —                                                                                                                                                                                                                                                                 | Ivij.<br>—x    | —   | —   | —   | +   | —   | 3 wks.  | —   |
| +                                                                                                                                                                                                                         | +   | —   | —   | —   | —   | 0   | 0   | 0                                                                                                                                                                                                            | 0   | 0   | 0   | 0   | 80  | 22  | 1008 | +                                                                                                                                                                                                                                                                 | Ixxiv.         | —   | —   | —   | +   | 0   | 5 mo.   | +   |
| +                                                                                                                                                                                                                         | +   | —   | —   | —   | —   | 0   | 0   | 0                                                                                                                                                                                                            | 0   | —   | —   | +   | 60  | 24  | 1013 | —                                                                                                                                                                                                                                                                 | O iv.<br>Ixiv. | —   | —   | —   | +   | —   |         |     |
| +                                                                                                                                                                                                                         | +   | —   | —   | —   | +   | 0   | 0   | 0                                                                                                                                                                                                            | 0   | —   | —   | +   | 96  | 25  | 1010 | +                                                                                                                                                                                                                                                                 | Ixvii.         | +   | +   | +   | —   |     | 8 wks.  | —   |
| +                                                                                                                                                                                                                         | +   | —   | —   | +   | +   | 0   | 0   | 0                                                                                                                                                                                                            | 0   | —   | —   | +   | 82  | 30  | 1030 | +                                                                                                                                                                                                                                                                 | Ix.            | —   | —   | —   | +   |     | 116     |     |
| +                                                                                                                                                                                                                         | +   | —   | —   | —   | +   | +   | 0   | 0                                                                                                                                                                                                            | 0   | +   | —   | —   | 72  | 18  | 1010 | —                                                                                                                                                                                                                                                                 | O ijsa.        | +   | —   | +   | —   |     | 5 mo.   |     |
| +                                                                                                                                                                                                                         | +   | —   | —   | —   | +   | 0   | 0   | 0                                                                                                                                                                                                            | 0   | +   | —   | —   | 86  | 28  | 1013 | —                                                                                                                                                                                                                                                                 | O ijsa.        | —   | —   | —   | +   |     | 6 mo.   |     |
| +                                                                                                                                                                                                                         | +   | —   | —   | —   | +   | 0   | 0   | 0                                                                                                                                                                                                            | 0   | +   | —   | —   | 72  | 24  | 1012 | —                                                                                                                                                                                                                                                                 | O ijsa.        | —   | —   | +   | —   |     | 6 wks.  |     |
| +                                                                                                                                                                                                                         | +   | —   | —   | —   | +   | 0   | 0   | 0                                                                                                                                                                                                            | 0   | 0   | 0   | 0   | 70  | 24  | 1011 | +                                                                                                                                                                                                                                                                 | O iv.          | +   | —   | +   | —   |     |         |     |
| +                                                                                                                                                                                                                         | —   | —   | +   | —   | +   | +   | 0   | 0                                                                                                                                                                                                            | 0   | —   | —   | +   | 104 | 30  | 1025 | +                                                                                                                                                                                                                                                                 | Ix.            | +   | +   | +   | —   |     | 4 mo.   | —   |
| +                                                                                                                                                                                                                         | +   | —   | —   | —   | +   | 0   | 0   | 0                                                                                                                                                                                                            | 0   | +   | —   | —   | 80  | 24  | 1011 | —                                                                                                                                                                                                                                                                 | O ijsa.        | +   | +   | —   | +   |     |         |     |
| +                                                                                                                                                                                                                         | +   | —   | —   | +   | +   | 0   | 0   | 0                                                                                                                                                                                                            | 0   | 0   | 0   | 0   | 104 | 34  | 1032 | +                                                                                                                                                                                                                                                                 | scanty         | +   | —   | +   | —   | 0   | 1 year  |     |
| +                                                                                                                                                                                                                         | +   | —   | —   | —   | +   | 0   | 0   | 0                                                                                                                                                                                                            | 0   | +   | —   | —   | 82  | 18  | 1009 | —                                                                                                                                                                                                                                                                 | Ib. ijs.       | 0   | —   | +   | —   | 0   | 3 years |     |
| +                                                                                                                                                                                                                         | +   | —   | —   | —   | +   | 0   | +   | —                                                                                                                                                                                                            | —   | +   | —   | —   | 90  | 20  | 1010 | —                                                                                                                                                                                                                                                                 | Ixlv.          | —   | —   | —   | +   |     |         |     |
| +                                                                                                                                                                                                                         | +   | —   | —   | —   | +   | 0   | 0   | 0                                                                                                                                                                                                            | 0   | +   | —   | —   | 70  | 25  | 1008 | —                                                                                                                                                                                                                                                                 | Ilij.          | —   | —   | —   | +   |     | 1 year  |     |
| +                                                                                                                                                                                                                         | +   | —   | —   | —   | +   | 0   | 0   | 0                                                                                                                                                                                                            | 0   | +   | —   | —   | 66  | 25  | 1013 | —                                                                                                                                                                                                                                                                 | Ixxxij.        | —   | —   | —   | +   |     | 1 year  |     |

|                                       | 1. | 2 | 3 | 4 | 5 | 6. | 7. | 8 | 9. | 10 | 11. | 12. | 13. | 14 | 15 | 16. | 17. | 18. | 19. | 20 | 21 | 22. | 23 |
|---------------------------------------|----|---|---|---|---|----|----|---|----|----|-----|-----|-----|----|----|-----|-----|-----|-----|----|----|-----|----|
| Eliza Webb,<br>Æt. 30.—8. 6. 42       | +  | + | — | + | — | —  | +  | + | —  | —  | —   | —   | —   | +  | +  | +   | —   | +   | +   | +  | 0  | 0   | 0  |
| 4. Lydia.                             |    |   |   |   |   |    |    |   |    |    |     |     |     |    |    |     |     |     |     |    |    |     |    |
| Thomas Lilburn,<br>Æt. 32.—9. 6. 42   | +  | 0 | 0 | — | — | 0  | +  | 0 | +  | —  | —   | —   | —   | —  | +  | —   | —   | —   | —   | —  | 0  | 0   | 0  |
| 19. Job.                              |    |   |   |   |   |    |    |   |    |    |     |     |     |    |    |     |     |     |     |    |    |     |    |
| Henry Stanley,<br>Æt. 6.—15. 6. 42    | —  | — | — | — | — | —  | —  | — | —  | —  | —   | —   | —   | +  | +  | —   | —   | —   | +   | +  | 0  | 0   | 0  |
| 14. Lydia.                            |    |   |   |   |   |    |    |   |    |    |     |     |     |    |    |     |     |     |     |    |    |     |    |
| Eliz. McEnnis,<br>Æt. 37.—15. 6. 42   | +  | + | + | 0 | — | —  | +  | 0 | —  | —  | —   | —   | +   | +  | +  | —   | +   | +   | +   | +  | 0  | 0   | 0  |
| 5. Lydia.                             |    |   |   |   |   |    |    |   |    |    |     |     |     |    |    |     |     |     |     |    |    |     |    |
| Sarah Cooksey,<br>Æt. 44.—6. 7. 42    | —  | — | — | — | — | —  | —  | 0 | —  | —  | —   | +   | —   | —  | +  | +   | —   | +   | —   | +  | 0  | 0   | 0  |
| 1. Lydia.                             |    |   |   |   |   |    |    |   |    |    |     |     |     |    |    |     |     |     |     |    |    |     |    |
| Angelina Potts,<br>Æt. 24.—26. 8. 42  | +  | — | — | + | + | —  | —  | 0 | —  | —  | —   | —   | —   | —  | +  | —   | —   | +   | +   | —  | 0  | 0   | 0  |
| 3. Lydia.                             |    |   |   |   |   |    |    |   |    |    |     |     |     |    |    |     |     |     |     |    |    |     |    |
| J. Hammersly,<br>Æt. 40.—15. 6. 42    | +  | — | — | 0 | 0 | —  | —  | 0 | —  | —  | —   | —   | —   | —  | +  | +   | 0   | —   | 0   | —  | 0  | 0   | 0  |
| 5. Job.                               |    |   |   |   |   |    |    |   |    |    |     |     |     |    |    |     |     |     |     |    |    |     |    |
| James Lynch,<br>Æt. 25.—29. 6. 42     | +  | + | + | 0 | 0 | —  | +  | 0 | 0  | —  | —   | —   | +   | —  | +  | +   | —   | —   | +   | +  | 0  | 0   | 0  |
| 1. Job.                               |    |   |   |   |   |    |    |   |    |    |     |     |     |    |    |     |     |     |     |    |    |     |    |
| Michael Bowring,<br>Æt. 56.—29. 6. 42 | +  | + | — | — | 0 | —  | —  | 0 | —  | —  | —   | +   | +   | —  | +  | —   | 0   | —   | —   | +  | 0  | 0   | 0  |
| 14. Job.                              |    |   |   |   |   |    |    |   |    |    |     |     |     |    |    |     |     |     |     |    |    |     |    |
| George Moore,<br>Æt. 22. 6. 7. 42     | +  | — | — | — | — | —  | —  | — | —  | —  | —   | —   | 0   | +  | +  | —   | —   | —   | —   | —  | 0  | 0   | 0  |
| 14. Job.                              |    |   |   |   |   |    |    |   |    |    |     |     |     |    |    |     |     |     |     |    |    |     |    |
| John Foley,<br>Æt. 38.—6. 7. 42       | +  | + | — | — | — | —  | —  | 0 | —  | —  | —   | —   | —   | —  | +  | —   | —   | —   | —   | —  | 0  | 0   | 0  |
| 23. Job.                              |    |   |   |   |   |    |    |   |    |    |     |     |     |    |    |     |     |     |     |    |    |     |    |
| George Beckley,<br>Æt. 42.—6. 7. 42   | +  | — | — | — | — | —  | —  | — | —  | —  | —   | —   | —   | —  | +  | —   | —   | —   | +   | —  | 0  | 0   | 0  |
| 11. Job.                              |    |   |   |   |   |    |    |   |    |    |     |     |     |    |    |     |     |     |     |    |    |     |    |
| Jock Hirsch,<br>Æt. 40.—27. 7. 42     | 0  | + | — | — | — | —  | +  | + | —  | —  | —   | —   | —   | —  | +  | —   | +   | —   | —   | +  | 0  | 0   | 0  |
| 7. Job.                               |    |   |   |   |   |    |    |   |    |    |     |     |     |    |    |     |     |     |     |    |    |     |    |
| John Cox,<br>Æt. 39.—3. 8. 42         | +  | + | 0 | + | + | —  | +  | 0 | —  | —  | —   | —   | —   | —  | +  | —   | —   | —   | —   | +  | —  | +   | +  |
| 1. Job.                               |    |   |   |   |   |    |    |   |    |    |     |     |     |    |    |     |     |     |     |    |    |     |    |
| John Gillman,<br>Æt. 63.—3. 8. 42     | +  | — | — | — | — | —  | —  | 0 | 0  | —  | —   | —   | —   | —  | +  | —   | 0   | —   | —   | —  | 0  | 0   | 0  |
| 20. Job.                              |    |   |   |   |   |    |    |   |    |    |     |     |     |    |    |     |     |     |     |    |    |     |    |
| Jos. Haynes,<br>Æt. 49.—10. 8. 42     | +  | + | — | — | — | —  | 0  | 0 | —  | —  | —   | —   | —   | —  | +  | 0   | —   | +   | —   | +  | 0  | 0   | 0  |
| 23. Job.                              |    |   |   |   |   |    |    |   |    |    |     |     |     |    |    |     |     |     |     |    |    |     |    |
| Charles Collins,<br>Æt. 26.—10. 8. 42 | +  | — | — | — | — | —  | 0  | 0 | —  | —  | —   | —   | +   | —  | +  | +   | 0   | 0   | —   | +  | 0  | 0   | 0  |
| 9. Job.                               |    |   |   |   |   |    |    |   |    |    |     |     |     |    |    |     |     |     |     |    |    |     |    |
| Ed. Stamford,<br>Æt. 45.—1. 9. 42     | +  | — | — | + | + | —  | +  | 0 | —  | —  | —   | —   | —   | —  | +  | —   | —   | —   | —   | +  | 0  | 0   | 0  |
| 19. Job.                              |    |   |   |   |   |    |    |   |    |    |     |     |     |    |    |     |     |     |     |    |    |     |    |
| William Ingham,<br>Æt. 44.—29. 8. 42  | +  | + | — | — | — | —  | +  | 0 | +  | —  | —   | —   | —   | —  | +  | —   | —   | —   | —   | +  | 0  | 0   | 0  |
| 15. Job.                              |    |   |   |   |   |    |    |   |    |    |     |     |     |    |    |     |     |     |     |    |    |     |    |
| W. Callaghan,<br>Æt. 32.—1. 8. 42     | +  | + | — | + | — | —  | —  | 0 | —  | —  | —   | —   | —   | —  | +  | +   | —   | —   | —   | +  | 0  | 0   | 0  |
| 20. Job.                              |    |   |   |   |   |    |    |   |    |    |     |     |     |    |    |     |     |     |     |    |    |     |    |

| 24. | 25. | 26. | 27. | 28. | 29. | 30. | 31. | 32. | 33. | 34. | 35. | 36. | 37. | 38. | 39.                | 40. | 41.              | 42. | 43. | 44. | 45. | 46. | 47.     | 48. |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--------------------|-----|------------------|-----|-----|-----|-----|-----|---------|-----|
| +   | +   | —   | —   | —   | +   | 0   | 0   | 0   | 0   | —   | —   | +   | 78  | 20  | 1015               | —   | lb. i.<br>3iv.   | —   | —   | —   | +   | +   | 1.6.0   | +   |
| +   | +   | —   | —   | 0   | +   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 60  | 0   | 1014               | 40  | 3xl.             | —   | —   | +   | —   |     | 0       | +   |
| +   | +   | —   | —   | —   | —   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 96  | 32  | 1011               | +   | lb. 2.           | —   | 0   | —   | +   |     | 0.0.3   | +   |
| +   | +   | —   | —   | —   | +   | 0   | 0   | 0   | 0   | +   | —   | —   | 86  | 24  | 1008               | +   | lb. iij.<br>3vj. | —   | —   | +   | —   | +   | 3.6.0   | +   |
| +   | —   | —   | +   | —   | +   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 74  | 19  | 1016               | —   | lb. i.<br>3ij.   | +   | —   | —   | +   | +   | 0.4     | +   |
| +   | +   | —   | —   | —   | —   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 94  | 22  | 1014               | +   | O 3.<br>3ij.     | —   | —   | —   | +   | —   | 0.5     | —   |
| +   | +   | —   | —   | 0   | +   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 80  | 0   | 1013               | 0   | 3xxxj.           | —   | —   | +   | —   |     | 1.6     | 0   |
| +   | +   | —   | —   | —   | +   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 112 | 26  | 1010               | 0   | 3xxx.            | 0   | 0   | +   | —   |     | 0.3     | —   |
| +   | 0   | 0   | 0   | —   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 1013<br>to<br>1026 | +   | 3xxiv.           | 0   | 0   | +   | —   |     | 4 years | —   |
| +   | +   | —   | —   | —   | 0   | +   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 1017               | +   | 3½ pta.          | —   | —   | +   | —   |     | 2 wks.  | —   |
| +   | —   | 0   | 0   | —   | +   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 1019<br>to<br>1026 | 0   | 2½ pta.          | —   | —   | +   | —   |     | 5 wks.  | —   |
| +   | +   | —   | —   | —   | +   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 112 | 0   | 1021               | —   | 3xxiv.           | 0   | 0   | +   | —   |     | 5 mo.   | 0   |
| +   | 0   | 0   | +   | —   | +   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 1016               | —   | 3xl.             | +   | —   | —   | +   |     | 15 yrs. | —   |
| +   | +   | —   | —   | —   | +   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 92  | 0   | 1011               | —   | 3xxx.            | —   | —   | —   | +   |     | 6 mo.   | —   |
| +   | +   | —   | —   | —   | +   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 88  | 28  | 1009               | —   | 3liv.            | —   | —   | —   | +   |     | 4 yrs.  | +   |
| +   | +   | —   | —   | +   | +   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 1025               | —   | lb. i.           | —   | —   | +   | —   |     | 4 mo.   | —   |
| +   | 0   | 0   | 0   | +   | +   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 28  | 1027               | —   | 3xl.             | —   | —   | —   | +   |     | 2 mo.   | 0   |
| +   | —   | —   | +   | —   | +   | 0   | 0   | 0   | 0   | +   | —   | —   | 86  | 0   | 1009               | —   | 3xx.             | —   | —   | +   | —   |     | 5 mo.   | —   |
| +   | 0   | 0   | 0   | —   | +   | 0   | 0   | 0   | 0   | —   | —   | +   | 62  | 20  | 1011               | +   | 3<br>3xxiv.      | 0   | —   | —   | +   |     | 14 da.  | —   |
| +   | +   | —   | —   | —   | +   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 84  | 20  | 1025               | —   | 3lij.            | —   | —   | +   | —   |     | 2 mo.   | 0   |

**PLATE I.**

---

*Fig. 1.*

**View of the external surface of the Kidney, in Case 3. p. 204.**

*Fig. 2.*

**Longitudinal section of the same.**

Pl. 1.



Printed by W. & S. Harburt

Dr. H. H. H. H. H.







( 302 )

**PLATE II.**

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**Longitudinal section of a Kidney, in Case 5.**

**See p. 215.**

Pl 2



si del et lish

Printed in U.S.A. by Hunhart





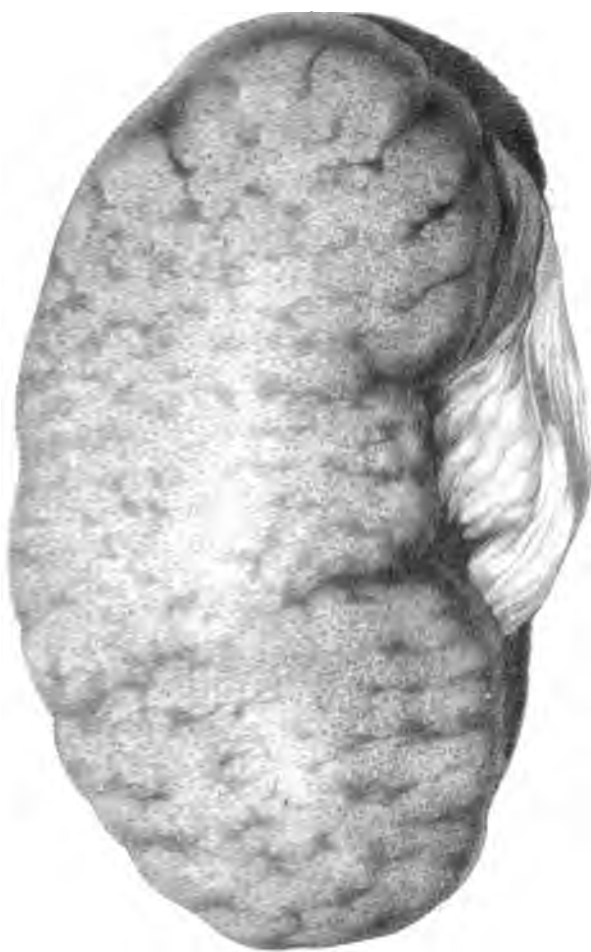
**PLATE III.**

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**External surface of a Kidney, in Case 11, with the tunic removed.**

**See p. 245.**

Pl. 3.



*vasi del et lili*

*Printed by M & X. Banhart*







**PLATE IV.**

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**Longitudinal section of a Kidney, in Case 11. A part only is finished, so as to shew the granular cortical structure.**

**See p. 245.**

Pl. 4.



22 del or hach

Printed by M. L. H. H. H. H.



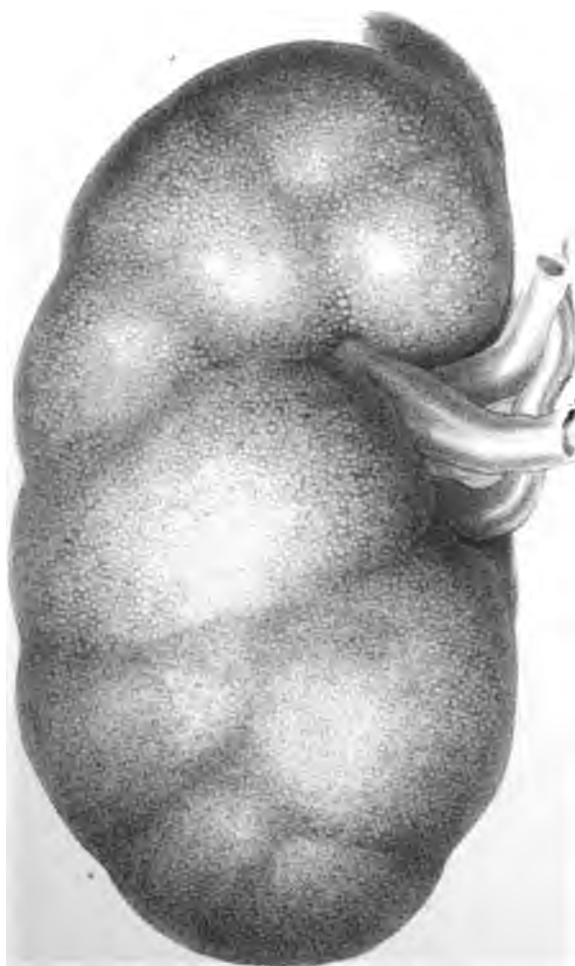


**PLATE V.**

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**External surface of a Kidney, in Case 4, with the tunic removed.  
See p. 208.**

Pl. 5.



*del et lith.*

*Printed by W. & A. Hancock*



**PLATE VI.**

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**Longitudinal section of a Kidney, in Case 4. The part of the drawing to the right is finished, so as to shew the finely granular structure. See p. 203.**

Fig. 10



*Turner del et lith.*

*Printed by W. & A. S. Hanbury*

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**PLATE VII.**

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**External surface of the Kidney, and supra-renal capsule, in Case 9 ;  
the tunic being removed. See p. 238.**

Pl. 7.

Fig. 1.



Printed by M. & N. Bonhart

Gust, del et lith.



**Vol. I.**

**y**



**PLATE VIII.**

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*Fig. 1.*

Portion of a longitudinal section of a Kidney, in Case 7. See p. 222.

*Fig. 2.*

Portion of a longitudinal section of a Kidney, in Case 9. See p. 238.

Pl 8



Fig 2

Fig 1

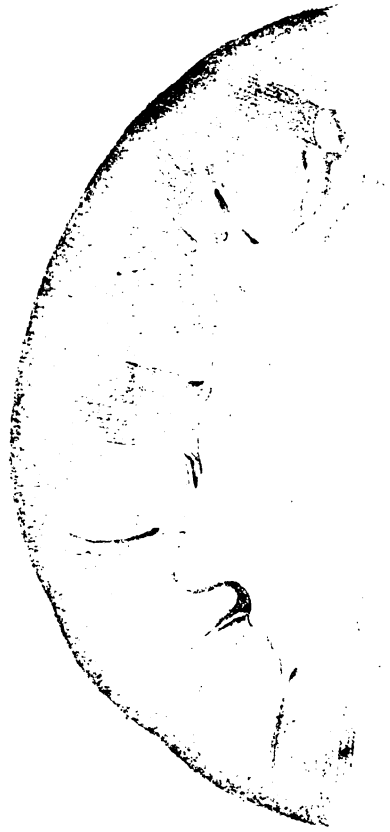






PLATE IX.

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*Fig. 1.*

Part of the external surface of a Kidney, in Case 8; presenting an appearance which seemed to be the result of extravasation. The outline shews the size of the organ.

*Fig. 2.*

Part of a section of the same Kidney.

(See page 232.)

Pl 9.

Fig 1.



Fig 2.



W. Hurst del. et lith.

Printed by J. & J. Mansel



**OBSERVATIONS ON THE BLOOD,**  
**WITH REFERENCE TO ITS PECULIAR CONDITION IN THE**  
**MORBUS BRIGHTII.**

BY GEORGE OWEN REES, M.D. F.R.S.  
 PHYSICIAN TO THE PENTONVILLE NEW MODEL PRISON.

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THE examinations of diseased blood which I had an opportunity of making at Guy's Hospital during the past summer, and the results of which will be found appended to each Case as given in the present Number of the Reports, have shewn much matter of interest in their general bearings; and as it is my intention to compare these diseased conditions with the healthy standard, and moreover to enter upon observations connected with the intimate structure of the blood, I may perhaps be excused for premising my remarks by detailing a few experiments, made with a view of proving the anatomy and true mechanical relations of the blood-corpuscle. The diseased condition, to which I have above referred, interferes with many of the physical attributes of the blood; and I am therefore anxious that medical readers should be satisfied on several points relating to the physical condition of the blood in health, before venturing to draw conclusions from what has been observed in disease.

It is hoped that the experiments about to be described may shew the necessity for a correct knowledge of physical structure on the part of those who are occupied in the chemical examination of the blood; and, also, that it may appear how we occasionally possess means of proving on large masses the views to which we have been led by microscopic examination—a method of inquiry which, valuable as it certainly is, must always be received with the distrust naturally felt towards a means of investigation so tempting to the imagination, and which, it is to be feared, has already been productive of much mischief in the hands of the ingenious and unscrupulous.

VOL. I.

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A careful perusal of the various anatomical and chemical works published on the blood will shew to the reader, that the writers on both branches of science begin to be at fault at one and the same point; that being, when they treat of the colouring matter of the blood, and its true relation to the corpuscle. They know well that the blood, while circulating, is composed of blood-corpuscles, suspended in a liquor; and they describe how this liquor, when the blood is drawn, deposits fibrin, and retains its albumen, extractives, and salts in solution, forming serum: they know, too, that the fibrin adheres to the blood-corpuscles; and the two together make up the mass called crassamentum: but from this point the subject becomes confused; and the anatomist who refers to chemical works for assistance will be equally at a loss with the chemist, who contents himself with a review of the present state of microscopic science, as applied to this branch of physiology. The most recent works on the chemistry of this subject shew a complete want of information concerning the physical conditions under which the red colouring matter is placed; and the processes recommended for its extraction are very unsatisfactory to the microscopic anatomist, who, if he refer to any recent work on the chemistry of the blood, (take for instance the quarto of Lecanu,) will, from the knowledge he possesses of physical structure, be not only dissatisfied, but thoroughly convinced that such a process as that recommended for the extraction of hæmatosine can scarcely be looked upon otherwise than as a means of obtaining a red matter changed by the action of powerful re-agents, and in admixture with the various products of the action of sulphuric acid on animal membrane. Let us imagine a physiologist referring to the work above mentioned;—and how will he be assisted? The process for the extraction of hæmatosine commences as follows:—The blood, fresh drawn, is to be deprived of its fibrin by beating it with twigs while coagulating, and then sulphuric acid is to be added to the remaining red liquor until it becomes brown and nearly solid. There is no occasion to enter further on this process. I shall, I trust, be able to shew how this first step is grossly inconsistent with what we know of the physical structure of the blood. Now, if it can be proved that the red colouring

matter is contained in a vesicle, that vesicle with its inclosed coloured matter making up the blood corpuscle, we at once perceive the extreme awkwardness of this process, which, instead of first exposing the colouring matter mechanically, and then proceeding to extract it, subjects it, or rather its containing sac, to the action of a powerful re-agent; thus attacking it only after the formation of inconvenient products consequent on the destruction of an albuminous membrane by sulphuric acid; making it a difficult matter to believe that we at last obtain it in a form to exhibit the properties it possessed while circulating. Had the chemist been aware of that which I shall now notice, he would have been enabled, first to separate the blood corpuscles, then to burst them, and so obtain their coloured contents in solution for chemical examination.

In proceeding to treat of the red colouring matter as a constituent of the blood-corpuscle, I must premise that great confusion has arisen from the terms, red particle, red globule, and red corpuscle, being regarded as synonymous with hæmotosine or colouring matter; the latter expression meaning, in its correct signification, nothing more than one of the constituent parts of the red corpuscles; there being a white matter also present in those bodies, which chemists have only noticed within the last few years, and have never yet ventured to define more particularly than as the white matter of the corpuscles.

Assisted with the evidence afforded by some recent microscopic observations, I have been led to determine on a larger scale what I believe to be the true relation between the red colouring principle or hæmotosine and the white matter of the corpuscles. The microscopic experiments to which I allude\* demonstrated that the red corpuscles were closed sacs, containing a fluid within them; and made it a matter of interest further to ascertain whether the fluid were red; or, on the contrary, that the corpuscle owed its colour to the redness of the enveloping membrane, the fluid within being without colour. The former of these views is certainly the

\* Rees and Lane on the Structure &c. Vide Guy's Hospital Reports, No. 13.

most generally entertained by micrographers, though we find Schultze regarding the latter as the more correct:—and it is not easy to devise means for testing the truth of either position by microscopic examination.

In considering this question, it occurred to me, that if the blood corpuscle were a closed sac, and capable of being burst by the addition of water (a point proved by the microscopic experiments above alluded to), we might, by thus treating a large quantity of collected corpuscles and bursting them, be enabled to collect the burst cases in mass at the bottom of the water, which would hold their contents in solution;—that we could thus examine their colour, and by this simple experiment set the question at rest. With this view, the serum was decanted from a specimen of coagulated blood: the clot was next carefully washed in the serum, in order to get as many red corpuscles as possible into the liquor: it was then removed, and the serum set aside to allow the red corpuscles to subside. Subsidence being complete, which occupied several hours, the supernatant serum was decanted, as nearly as possible without disturbing the deposit, and the deep-red thick mixture at bottom poured into distilled water, in order to burst the membranes of the corpuscles. This aqueous mixture was then well stirred, and set aside; when, after a few hours had elapsed, I observed a white deposit at the bottom of the containing vessel, while the supernatant liquor remained quite clear, and of a fine red colour. Now, with a previous knowledge that the blood corpuscles are burst by water, and likewise that they are sacs containing a fluid, this experiment makes it pretty certain that the containing sacs are white, and the contained liquor of a red colour.

I do not wish here to enter at length on the description of what I feel confident in my own mind should be regarded as the nucleus of the blood-corpuscle; but merely have to state, that the microscopic examination of the white precipitate to which I have above alluded has completely confirmed my former views of this question; satisfying me that the deposit is made up of burst membranes of corpuscles, and of nuclei; the latter being apparently the same structures which some writers have regarded as corpuscles deprived of their red colouring matter—a condition which, from what has

already been demonstrated concerning the corpuscle, can never occur; inasmuch as destruction of the inclosing membrane of the corpuscle is necessary before its colouring matter can be extracted: after which violence, it is obvious that any soft solid maintaining a definite form, and which can be seen and measured under the microscope, must be some constituent of original organized structure, which has now become disintegrated.

The opinion, that the membranes of the blood-corpuscles, notwithstanding their extreme tenuity, possessed in common with other animal structures the property of admitting the passage of fluids in accordance with the law of endosmose, and which was first noticed and described by Mr. Lane and myself in the *Guy's Hospital Reports*, has been, up to the present time, entirely supported by microscopic evidence. I am anxious, on the present occasion, to prove the truth of this view, by relating some experiments conducted on large quantities of blood; not only more firmly to establish a necessary premise to my conclusions, but also to shew that the correctness of opinions, the results of microscopic examination, occasionally admits of being proved by experiments conducted on masses visible to the unassisted eye. Now, if it be true that liquors pass in and out of the blood-corpuscles in proportions bearing a ratio to their specific gravities, then, if a large quantity of corpuscles be collected, we ought, by treating them with solutions of different densities, to be able to produce conditions which will differently affect their contents; the higher specific gravities taking out large proportions of those contents; the lower specific gravities removing less from within the corpuscle: and our liquors obtained after deposition has occurred ought to be differently coloured accordingly: some should be deeply tinged with red; others almost white, having, from their less-specific gravity, entered the corpuscle in large proportion, and only drawn out a very small quantity of its coloured liquor.

The results obtained from experiments conducted as above described have been in exact accordance with those microscopic views, the correctness of which they were intended to test: thus, when a quantity of corpuscles obtained by subsidence from serum were mixed with a solution of common

salt, as nearly as possible of the specific gravity of the liquor by which the corpuscle was surrounded, and consequently of the same specific gravity as the liquor within, the mixture deposited the corpuscles unaltered, and the supernatant solution was colourless, owing to the difficulty of any admixture occurring between liquors of the same specific gravity through the membrane containing the red colouring matter. When, however, a liquor of higher specific gravity was mixed with another portion of these subsided corpuscles, then the conditions were completely altered; the subsided corpuscles exhibiting a darker colour at the bottom of the vessel, owing to their aggregating more closely from being to a certain extent collapsed; and the supernatant liquor, instead of being colourless, was tinged of a deep red; the liquor of higher specific gravity having extracted a large quantity of the contents of the corpuscles. When the reverse of this experiment was performed by making the mixture with a solution of less-specific gravity than the liquor within the corpuscle, then the subsided mass was less compact, and somewhat lighter in colour, but still red; and the supernatant liquor exhibited but a feeble and scarcely perceptible tinge of pink, owing to the small quantity of colouring matter which could escape from within the corpuscles; while the liquor of less-specific gravity would enter in large proportion from without, swelling them, and thus making them occupy more room as a precipitate. It may be stated here, that a solution of any salt which does not act as a precipitant of serum, or even sugar, will serve to shew these effects; the conditions produced being then entirely governed by the specific gravity of the solutions, and in no way resulting from the chemical qualities of the salt. The next point to which I must allude, in connection with the subject of healthy blood, is the condition of the iron, and its true position in the organization of the corpuscle. It has already been proved that the red colouring matter is a fluid contained within a vesicle; which vesicle allows of the passage of fluids from without to within, and *vice versa*, according to certain fixed laws: and I shall now endeavour to shew that the iron of the blood is contained in this red liquor, and not in any other of the constituent parts of the corpuscle. If we repeat

the first experiment which I detailed, and which consisted in bursting the vesicles of a mass of corpuscles, and so destroying them by the addition of distilled-water, we can obtain a solution of their coloured contents, either by allowing the subsidence of the cases and nuclei and pouring off the clear liquor, or by performing a careful filtration through doubled blotting-paper. If the clear solution so obtained be now evaporated to dryness, I find, by incineration of the dried mass, that it contains the whole of the iron of the corpuscles; while the white matter which subsides (composed of burst cases and nuclei), if well washed from adhering colouring matter, does not yield the slightest indication of the presence of the metal. We may therefore conclude that the red liquor of the corpuscles contains the whole of the iron, and in a very soluble form.

Those who have studied the appearances put on by the blood-corpuscles, as seen under the microscope, whatever may be their opinion concerning the method of re-production, will, I am sure, allow that corpuscles of a smaller size are constantly to be detected mixed up with those of mature growth; and I have myself, on several occasions, been satisfied, by experiment, that these smaller corpuscles possess precisely the same physical attributes as the larger ones, in relation to endosmotic phenomena. Now, it must be a necessary part of the process by which these small corpuscles arrive at maturity, that iron enter within the envelope, to supply one of the constituents of the red colouring matter; and to ensure this effect, two conditions are required:— 1. A liquor containing iron in solution must be applied to the membrane of the corpuscle; and, 2. This liquor must be of a specific gravity less than that contained within the corpuscle, or it will not enter it in quantity. Both these required conditions are to be found as physico-chemical characteristics of the mixture of chyle and lymph, which enters the blood by the thoracic-duct, to which fluid all experimenters have given a lower specific gravity than the liquor sanguinis. Thus the specific gravity of the contents of the thoracic-duct in the human subject, which I lately analysed\*, was 1024, while that of the liquor sanguinis may be given at about 1052, at the least.

\* Vide Philosophical Transactions for 1842, Part I.

From other experiments, on the cat, the dog, and the ass, I am satisfied of the general truth of this statement. The iron which exists in the chyle is not contained in the crassamentum, which forms by coagulation; but we find it, on the contrary, as a constituent of the serum in a perfect state of solution, so that it may enter with facility through the membranes of the corpuscles: so perfect, indeed, is this solution, that, even after evaporating the chyle to dryness, we are enabled to extract the iron from the albuminous matters by digestion in water. It exists, in fact, dissolved in that constituent of the chyle which is called the aqueous extractive, and most probably in the form of lactate. Nature has, then, in this admirable manner provided for the introduction of iron into the corpuscle, by presenting it in a perfectly soluble form to the enveloping membrane, and dissolved in a liquor of a specific gravity suited to effect the necessary endosmotic actions.

Having thus shewn the reason why iron exists in the serum, and not in the crassamentum of the chyle—and also, why the contents of the thoracic duct are of less specific gravity than the liquor sanguinis—I wish to direct attention to the series of pathological phenomena which may be expected to arise when this due balance and arrangement of the physical properties of the fluids becomes destroyed, and when, by a diseased condition of longer or shorter duration, the blood so far varies from its normal standard as to present obstacles to the performance of those actions on the part of the chyle which must be considered as necessary for the preservation of animal life.

From what has been demonstrated at the commencement of this Paper, it is evident, that as the important changes of respiration occur in the colouring matter of the corpuscle, and since that colouring matter is contained within a membrane, a healthy condition of this envelope, such as admits of the transmission of liquors and gases according to certain fixed laws, is as necessary for the maintenance of life and health as is the perviousness of the larynx, trachæa, or bronchi; and any general cause acting upon the corpuscle, so as to interfere with those properties, may be expected to destroy life as rapidly as would the closure of any of the

openings communicating between the atmosphere and the internal pulmonary surface.

Again, let the blood become deranged so that its specific gravity is lessened, and we may feel assured, that if the physical qualities, more especially the specific gravity of the chyle, be not simultaneously affected, and that, too, in a due proportion, the result must be, that the red colouring matter, the great oxygenator of the blood, is no longer produced in its ordinary quantity; the ferruginous serum of the chyle not being able to enter the blood-corpuscle as in health. Again, if the degeneration above alluded to take place, we must recollect that all the solids of the body through which the blood courses are formed with pores and of material admitting of endosmotic action; and that it is impossible for the solid constituents to preserve their health if constantly acted upon by the blood at a specific gravity of 1030 to 36, instead of 1052 to 57; the equilibrium of health being no longer preserved, and the watery blood inducing a like condition in the other solids. In throwing out these suggestions, I am prompted by a desire to draw the attention of the Profession to the great importance of the study of endosmotic action, as applied to pathology; many of the phenomena of the *Morbus Brightii* being apparently attributable to a condition of blood such as I have above noticed.

On examining the Table (which will be found at the end of this communication, and consulting the Cases with chemical notices appended, the following will appear the prominent features to which attention should be more especially directed:—1. The excessive quantity of water in the blood. 2. The existence in the blood of one of the ingredients of the urine. 3. The existence of the same ingredient of the urine in the milk, and also in the fluids effused into various serous cavities. 4. The absence or deficiency in the urine of one or more of the natural ingredients of the excretion. 5. The general watery condition of the urine. 6. The existence of albumen in the urine.

When considering the part taken by the blood in producing the *Morbus Brightii*, it must not be too rapidly concluded that those changes which are observed in more advanced stages of the disease are identical in kind, and differing only in degree from those occurring at the com-



mencement of a severe and fatal case; or that they are the cause of the symptoms, terminating in perfect recovery, which we so often observe in mild cases of anasarca with coagulable urine following scarlet-fever. The diseased conditions of the blood noticed in the Table may, however, I think, well be considered the cause of the train of secondary symptoms attendant on the *Morbus Brightii*; and the first morbid condition induced may be (as has been rendered more than probable by the late ingenious researches of Mr. Robinson) simply a congested state of the kidney—a mechanical derangement of circulation—giving rise to a filtration of the albuminous matters of the blood into the urine; a drain on the system which, by impoverishing the vital fluid, may, in its turn, make the blood a cause of further symptoms, such as would never have developed themselves had not the primary disease been manifest. All, indeed, that we know of the history of this degeneration of the kidney, the mild character of some of the cases, and the facility with which the disease, as following scarlatina, admits of cure—tends to shew, that in the commencement the blood may be perfectly healthy, and the albumen in the urine the result of congestion by blood in its normal state.

There is, however, a fact in the history of this affection which does not render it altogether improbable that the presence of an excess of water in the blood may, in some cases at least, assist in bringing about the effusion of serum into the urine. I allude to the frequency of a dry skin, observed in some early cases. The probability that such a state of the cutaneous surface acts as a cause is considerably increased by the tendency to this kind of dropsy after the cutaneous surface has been involved by an attack of scarlatina, which produces a form of *Morbus Brightii*, for the most part easily admitting of cure. The difficulties which must necessarily occur in freeing the blood of water when the action of the skin is lessened or entirely stopped must be considered as very great, when we remember the large quantities of fluid daily given off from the cutaneous surface, and the small excess only in the quantity of urine characterizing any form of *Morbus Brightii*;—the greater number of cases, indeed, passing less than the natural quantity. In making the above

suggestion, I in no way wish it to be inferred as my belief that congestion alone is incapable of producing coagulable urine; indeed, as stated before, direct experiment has shewn to the contrary: but it is certain that the tendency to the entrance of albumen into the urine will be increased by dilution of the blood; and we frequently observe a condition occurring, at the very outset of the disease, favourable to the production of this form of deterioration in the circulating fluid.

The secondary symptoms of the *Morbus Brightii*—such as effusion into the large serous cavities or the ventricles of the brain, general cellular effusion, and the peculiar anæmic appearance which, even when no swelling of the face exists, is frequently so characteristic as to attract the practised eye—are easily explicable as results, when once we are acquainted with the watery state of the blood, and the physiological conditions necessary to preserve the integrity of the blood-corpuscle. The obvious mechanical assistance which an excess of water must afford for the production of general effusion needs no comment; but it may be a matter of difficulty to some, to explain how it is that the blood loses its red colouring matter; and which, to be clearly understood, requires an insight into the more minute changes occurring in the fluid, as a result of its aqueous condition. I have before shewn, that if the chyle does not accommodate itself in relative specific gravity to the blood, the necessary endosmotic actions cannot take place between the two fluids; and we may consequently expect difficulty in the production and growth of the red corpuscles, inasmuch as the iron cannot be supplied for the formation of colouring matter, the ferruginous serum of the chyle no longer entering through the membrane of the blood corpuscle in virtue of its less specific gravity: and I think it may be maintained as the correct view, that this is really the cause of that great diminution in the proportion of colouring matter observed in the blood of patients affected with the advanced stage of the *Morbus Brightii*. This diminution in the proportion of red corpuscles does not occur in early cases of the disease, however confirmed in character: an example of which may be seen by referring to the history of George Moore, 14 Job Ward, a mild case, probably admitting of permanent cure, in which the blood contained more

than the normal proportion of fibrin and corpuscles; the albumen being very deficient, the serum light, and the water of the blood in about its natural quantity. We here see the first effects of the disease—the blood becoming deprived of its albuminous ingredients; a condition which, if it continue, will produce the next change; viz. a deterioration in the specific gravity of the contents of the corpuscle, owing to the liquor sanguinis becoming lighter, and endosmosing that structure: this state again soon succeeded by a lessening of the number of red corpuscles, attributable to the requisite actions no longer taking place on the part of the chyle, in the manner described in a former part of this Paper. The occurrence of inflammation in this disease, as will be seen by the analysis of the blood in the case of Holywell, produces the usual increase in the quantity of fibrin in the blood: this, however, did not happen to any considerable degree in the case of Charles Scott.

The existence of urea in the blood, and effusions obtained from the patients in the male and female wards, and also in the milk of a patient in Lydia Ward, has been satisfactorily proved: indeed, I have never yet failed to obtain it in sufficient quantity to shew its physical and chemical characters. The process employed for the blood and effusions is described in the Tenth Number of the Guy's Hospital Reports; and I find it to be, with slight variation, the best calculated for extracting urea from the milk. For this latter purpose the milk must be evaporated to dryness; and then several times digested with æther, which will extract the whole of the fatty matters, together with the urea; the latter being easily separable by heating the dry ethereal extract with water, and stirring it well during the digestion. After this process the urea exists dissolved in the water, which may be poured off from under the fatty matter, the latter having caked above the liquor on cooling.

As regards the urine in the *Morbus Brightii*, the deficiency of urea, and occasional deficiency or absence of lithic acid, its watery condition, and the presence of albumen, the two former states may in all probability be attributed to the derangement of the kidney alone; and the two latter, in some measure, to the condition of the blood. I am not aware that

the total absence of lithic acid from the urine has been before observed. That such was the case, however, was proved by rigorous chemical and microscopical examination; the former consisting in evaporating the urine to a small quantity, adding muriatic acid, and carefully analysing any precipitate so obtained.

Albuminous urine, when viewed under the microscope, exhibits granules and corpuscles of varying form and size; the larger of which might be mistaken for the pus-globule by careless or inexperienced observers. The true source, however, of these bodies is, in all probability, the serum of the blood, which I find deposits analogous granules and corpuscles when diluted by a liquor of light specific gravity; which may easily be proved by pouring distilled water on serum, and submitting to the microscope the precipitate which collects after a few hours have elapsed. In other respects, coagulable urine presents the ordinary appearances under the microscope; the solid ingredients or crystallizable products exhibiting, when present, their usual characteristics. Some specimens shew very well the large form of granulated mucous globule known as the secretion of the prostate.

In concluding this communication, I cannot help expressing a hope that the many points of interest which the study of the *Morbus Brightii* affords may receive the early attention of physiologists; believing, as I do, that careful observation of the phenomena occurring in this disease must eventually throw much light both on the true nature of the blood-corpuscle and the all-important offices of the function of respiration.

TABLE of RESULTS of *Examinations of BLOOD and URINE in MORBUS BRIGHTII.*

| Whence obtained.                                                                            | Blood:<br>Composition in 1000 parts.                                                                                                                                                     | Urine.                                                                                                                                                                                                            | REMARKS.                                                                                                                                       |
|---------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|
| WILLIAM CURTAIN,<br>22 Job Ward.                                                            | Water . . . 853·11<br>Solid matters } 81·28<br>of serum }<br>Fibrin and } 65·61<br>corpuscles }<br>Serum in 1000 parts:<br>Albumen . . . 68·5<br>Urea . . . . 0·5<br>Alkaline salts, 6·0 | 18 fluid oz. were passed in 24 hours, each oz. yielding 5·2 gr. of albumen (dry): sp. gr. of urine 1015: urea 8·1 per 1000. No lithic acid could be detected in this urine, in any form, either combined or free. | Specific gravity of the serum was 1023: it was not milky. The blood was very slightly buffed.                                                  |
| CHARLES SCOTT,<br>3 Job Ward,                                                               | Water . . . 835·85<br>Solid matters } 82·54<br>of serum }<br>Fibrin and } 81·61<br>corpuscles }                                                                                          | 32 fluid oz. passed in 24 hours: sp. gr. of urine 1011, each ounce containing 2·05 gr. of albumen. Lithic acid present, in small proportion.                                                                      | Blood buffed and cupped.                                                                                                                       |
| JAMES BACK,<br>2 Job Ward.<br>Disease complicated<br>with Phthisis.                         | Water . . . 828·92<br>Solid matters } 76·98<br>of serum }<br>Fibrin and } 94·10<br>corpuscles }                                                                                          | Containing 7·75 gr. of albumen in each oz.: urea 8·73 per 1000.                                                                                                                                                   | Serum contained 65·15 parts of albumen in 1000.                                                                                                |
| GEORGE HOLYWELL,<br>4 Job Ward.<br>Disease accompanied<br>with effusion into the<br>Pleura. | Water . . . 777·06<br>Solid matters } 71·14<br>of serum }<br>Fibrin and } 151·80<br>corpuscles }                                                                                         | For particulars, see the Cases in present Number.                                                                                                                                                                 | Blood buffed and cupped: sp. gr. of the serum 1018, containing in 1000 parts albumen 64 and salts 6·5 parts. Urea detected, but not estimated. |
| GEORGE MOORE,<br>14 Job Ward.                                                               | Water . . . 782·86<br>Solid matters } 73·14<br>of serum }<br>Fibrin and } 144·00<br>corpuscles }                                                                                         | . . . . .                                                                                                                                                                                                         | Serum of sp. gr. 1025, containing in 1000 parts albumen 72, and urea 1·25 parts.                                                               |
| ELIZABETH McINNES,<br>5 Lydia Ward.                                                         | Water . . . 805·71<br>Solid matters } 85·56<br>of serum }<br>Fibrin and } 108·73<br>corpuscles }                                                                                         | Sp. gr. 1012, containing 1·5 gr. of albumen in each oz., and no trace of lithic acid in any form.                                                                                                                 | Serum of sp. gr. 1025: alkaline salts 7 per 1000 parts of serum.                                                                               |
| From a healthy individual, for comparison.                                                  | Water . . . 792·20<br>Solid matters } 87·85<br>of serum }<br>Fibrin and } 119·95<br>corpuscles }                                                                                         | Sp. gr. 1022: urea 30·1, and lithic acid 1·0 parts per 1000. No trace of albumen.                                                                                                                                 | Serum of sp. gr. 1029 to 30, containing albumen . . . 79·5, alkaline salts 7·5 in 1000 parts.                                                  |

REPORT  
OF  
CASES OF FEVER.

BY J. H. BROWNE.

CASE 1.

*Simple Fever.*

FRANCES BAILEY, aged 8, a thin, delicate child, dark and strumous-looking, resident at Newington, where no source of infection could be traced: is subject to winter coughs: was admitted into Lydia Ward, under Dr. Bright, on the 18th of November, having been attacked, ten days previously, with chilliness, lassitude, pain in the head and limbs, followed by general pyrexia. Acetous lotions were applied to the head, and aperients administered, before her admission; when her manner was dull and stupid, the intellect slow, and she was rather deaf; she had a hot dry skin, with maculæ on the body, considerable pain in the head, and was restless and starting during her sleep; the tongue was dry, and rather brown in the centre, moister and white at the edges, with the tip and substance injected: there was dryness of the mouth, with sore-throat, and a relaxed condition of the fauces, with thirst and anorexia: the pulse were 120, feeble, and soft; the bowels regular; the urine scanty; and she had a slight cough.

She was ordered fever diet, with beef-tea and arrow-root; and to take two grs. of hyd. c. cretâ at bed-time, and ten gr. of sesquicarbonate of soda, in mint-water, every six hours.

The bowels were copiously evacuated daily: the tongue rapidly became moister and cleaner, and the skin cooler and moister: the pulse diminished to about 95, and was soft and fuller, but continued feeble; and the pain in the head left her. She used the mint and soda mixture until November 27th, with a liberal allowance of beef-tea; when, being quite convalescent, she left the hospital.

CASE 2.

*Simple Fever.*

ISAAC REMAN, aged 15, a pot-boy, light, and of fair complexion, resident at Greenwich, and generally enjoying good health; was ex-

exposed to wet and cold a week before admission ; after which, fever set in, commencing with chills, lassitude, and pains in the limbs, followed by headache, vertigo, and general pyrexia, but of a mild form. He was admitted into Luke Ward, under Dr. Addison, on Nov. 23, 1842, with a hot dry skin, flushed face, suffused eyes, intellectual dulness, pain in the head, and vertigo. Respiration was hurried, the pulse 96, full, compressible : there was anorexia, thirst, and dryness of the mouth and fauces ; the tongue was red at the tip and edges, with a moist yellowish fur in the centre, the urine was scanty and turbid, the bowels confined. He lay quiet in bed, and was indisposed to move, or reply when addressed ; was ordered low diet, and to take dococt hordei at intervals, and a scruple of rhubarb and calomel, which operated three or four times : his bowels afterwards continued regular : he persevered in the prescribed regimen, and became gradually convalescent ; and left the hospital on December 13th.

#### CASE 3.

##### *Mild Fever.*

PATRICK SWEENEY, aged 28, was admitted into Luke Ward, under Dr. Bright, on December 7th, 1842, an Irish labourer, living in London, stout and strongly made, with sallow complexion, stupid heavy aspect, and dull comprehension ; he complained of great languor and lassitude, with pain in the head and vertigo ; these symptoms were preceded by chilliness, and had existed for five days ; his skin was hot and dry ; his tongue moist, and red at the tip and edges, dry and furred in the centre ; the bowels were open, with a tendency to relaxation ; he had great muscular prostration, and disinclination to move or answer questions ; the pulse were 100, feeble, and pretty soft. The head was shaved, he was put on low diet, and took ten grs. of sesquicarbonate of soda three times a day, in mint-water

The febrile symptoms slowly subsided under the above treatment ; the bowels were regulated by chalk-mixture, a sa tendency to diarrhoea continued ; and on the 17th, beef-tea and arrow-root were given, the pulse being very feeble, softer, and 100, and the tongue beginning to clean. He continued improving ; but being very weak, and the pulse 110 and very feeble, on the 27th he was ordered to take three grs. of sesquicarbonate of ammonia in the infusion of serpentary, with half-a-drachm of the tincture three times a day ; and in the course of a few days he was put upon meat diet, under which he gradually regained strength, the pulse diminishing in frequency and improving in power, until the 11th of January, when he left the hospital, being quite convalescent.

## CASE 4.

*Simple Fever.*

CHARLES HICKES, aged 24, a carpenter, resident in the Kent Road, light and fair, and lately, though not formerly, of temperate habits, was admitted on November 11th, under Dr. Babington. He had been living in a house where there was fever, and was attacked nine days before his admission with rigors, lassitude, pains in the limbs and head, with nocturnal delirium, thirst, and febrile heat of surface. When admitted, his countenance was heavy and intellect dull, his face suffused, his skin hot and dry, and the abdomen beset with maculæ; he had severe pain in the head, with delirium and drowsiness, occasional shivering, great prostration, thirst, and anorexia; respiration was hurried, the bowels regular, and the urine copious; the tongue injected, and with a dry yellow fur in the centre; the pulse were 100, feeble, but rather sharp. He was ordered, to have the head shaved, to take two grains of hyd.  $\bar{c}$ . cretâ twice a-day, and fifteen gr. of sesquicarbonate of soda in mint-water three times a day.

On the 12th, the pulse were 96, the tongue was dry and tender, conjunctivæ injected, and the pain in the head and drowsiness continued. An evaporating lotion was ordered to the head, after which the drowsiness diminished, but the pain continued; he had more natural sleep, and less thirst; the tongue was moister, and there was less heat of surface, but the face was still flushed, and the bowels regular; and on November 14th he was ordered to have arrow-root.

From that date the pulse diminished in frequency, and became fuller, but were very feeble; he slept better, was less drowsy, and had less pain in the head; the febrile symptoms generally diminished, and his appetite improved; and on the 19th he had no pain, the maculæ had disappeared, the pulse were 75, fuller, but still weak, the tongue was tolerably clean, the bowels were regular, and he had but little thirst, but was very weak. Beef-tea was allowed, and he continued his medicine; and, until the 25th, had been daily improving, complaining only of slight vertigo occasionally; and as the bowels were confined, a dose of hyd.  $\bar{c}$ . cretâ, followed by castor-oil, was administered, which acted favourably. On the following day he was allowed meat diet, and continued improving, the pulse getting fuller and stronger, but still being weak.

On the 30th, the bowels required a dose of castor-oil and hyd.  $\bar{c}$ . cretâ: he had for some days been about the ward, and, daily getting stronger, left the hospital on December 4th.



## CASE 5.

*Simple Fever.*

JOHN COFFEY, aged 55, an Irishman, and by occupation a porter, with large bony frame and light complexion, residing in the Blackfriars' Road, has led an intemperate and irregular life, but enjoyed pretty good general health. Was admitted into Lazarus Ward, under Dr. Addison, on November 2d, 1842; having for fourteen days suffered from feverishness, with languor, debility, and occasional chilliness. At this time he had great thirst, with heat and dryness of the surface: maculæ were present on the chest and abdomen: his countenance was heavy and stupid, and his intellect dull. He had pain in the head, and vertigo, with prostration, and aching of the limbs: the tongue was injected at the tip and edges, and coated with a moist white fur in the centre, the breath was offensive, the bowels were slightly open: there was tenderness on pressing the *scrobiculus cordis*: the urine scanty, and high-coloured: the pulse 90, weak, and soft. He was ordered to have low diet, and to take a scruple of rhubarb with calomel directly; and an ounce and a half of saline mixture with liquor ammoniæ acetatis every six hours. The powder produced three loose evacuations: in other respects, he was much the same on the following day. He continued the use of the mixture, and was allowed beef-tea and arrow-root on the 5th of November; when the bowels were regular, the tongue moist, but still furred, the skin was cooler, he complained of no pain, and his general aspect was less dull. He continued improving, the pulse became less frequent and somewhat fuller, the tongue cleaner, and the skin cool and moister; and on the 15th he was allowed a pint of porter, with meat diet, and continued taking the mixture; under which he convalesced, and, with increased strength, left the hospital on November 19th.

## CASE 6.

*Simple Fever.*

HENRY PALMER, aged 15, a sand-stone hawker, stout, and well-made, with dark hair, and fair complexion; has enjoyed good health previously to this attack; resides in the Borough, but is not aware that fever existed in his own immediate neighbourhood, though it was prevalent in various parts of Southwark. Was admitted into Luke Ward, under Dr. Babington, on December 21, 1842, having been ill for fourteen days, with thirst, heat of skin, parched mouth, pain in the head and limbs, and lassitude, which were preceded and accompanied by occasional chilliness; and on admission, the face was flushed, the skin was hot and dry, the countenance dull, heavy, and stupid, and his answers slow and indefinite. The tongue was

injected, but coated with a moist whitish fur; he complained of pain in the head, with abdominal tenderness, and great lassitude; the bowels were rather confined; pulse 100, small and weak, but rather jarring. He was ordered to have low diet, and to take 15 grs. of sesquicarbonate of soda three times a day, in mint-water. Under this treatment he went on favourably; the bowels acting once daily; the thirst, heat of surface, and pain in the head, diminishing slightly: and on the 24th, the pulse were 100, still weak, and rather jarring; and the bowels were rather confined. He was ordered to take two scruples of rhubarb and sulph. potash powder on the following morning, and to continue the mixture; which he did, with a slow but gradual abatement of the febrile symptoms, and the bowels continued regular. —On the 31st, the pulse were 96, feeble, more equable in the beat, and soft, the tongue cleaner, the skin still above the natural temperature, but not pungent: he was ordered to take an ounce and a half of infusion of serpentary, with a drachm of the tincture, three times daily; and was allowed, in a day or two, an improvement in diet, with a little meat, under which he convalesced; and being much stronger, left the hospital on January 9th, having been fifteen days in the house.

*CASE 7.**Simple Fever.*

WM. BURY, a sailor, aged 32, of middle stature, with light hair and fair complexion, of intemperate habits, resident at Deptford, and habitually exposed to a damp unhealthy atmosphere, was admitted into Lazarus Ward, under Dr. Addison, on January 25, 1843; having fourteen days previously been attacked with rigors, followed by depression of spirits and great lassitude, and two days afterwards by a repetition of the rigor, which was followed by great heat of surface, thirst, impaired appetite, and constipation. He continued to drag on at his work; but daily getting worse, he applied for admission. He then complained of great debility, had a dull, heavy aspect, a confused manner, and suffusion of the eyes; the face was flushed, the skin hot and dry, and with maculæ on the chest and abdomen; the tongue was red at the tip and edges, with a moist fur in the centre, and great thirst and anorexia; the bowels were rather confined, but open once daily; the urine was natural in quantity, pale; the pulse were 100, soft and feeble. He was ordered low diet, and to take fifteen grs. of sesquicarbonate of soda in mint-water every six hours. He slept pretty well during the night: the skin on the 26th continued hot and dry: the pulse were very feeble, and he complained of great prostration: the bowels had been open once. He was ordered six

drachms of infus. serpentariæ and the same quantity of liquor ammon. acet. three times a day, and to have beef-tea and arrow-root.

On the 27th, the skin was cooler; the bowels open; the tongue moister and cleaner; the pulse 100, rather fuller, but still feeble: and from this date he slowly improved; his eyes became brighter, his general aspect less dull, the pulse fuller, and less frequent; his thirst diminished, and appetite restored; the tongue was moist, clean, and less injected: and on February 2d, he was allowed full diet; under which he gradually gained strength; and, quite convalescent, but still weak, left the hospital on February 11th.

#### CASE 8.

##### *Simple Fever.*

THOMAS BARRATT, aged 25, a foreman in a wine-cellar, and living in Whitechapel, where fever has been prevalent, generally enjoying good health, but of rather intemperate habits, was admitted into Job Ward, under Dr. Babington, on February 1st. He had lately been much depressed in spirits from pecuniary difficulties, and had for some weeks been suffering from occasional bilious sickness with general *malaise*, and nine days before admission he was compelled to desist from work: the usual symptoms of fever then set in and increased; and when admitted, he presented a stupid, heavy, listless aspect, with a countenance expressive of anxiety; his skin was hot and dry, with maculæ over the abdomen; the head hot and painful, preventing his sleeping; his tongue was coated with a thick moist fur, and red at the tip and edges; pulse 110, rather sharp, but feeble; the bowels open; the urine scanty. He was ordered low diet, and to take saline mixture with acet. of ammon. every six hours; and an evaporating lotion was applied to the head, which was shaved.

On the following day, the patient's aspect was improved: he had nearly lost all pain in the head; the skin was still hot and dry; he had great thirst; the pulse 90, rather jarring, but compressible; the urine copious. After this, the countenance became more animated, the heat of surface less, the tongue cleaner and moist, he had less thirst, and altogether improved, but was inclined to sleep a good deal during the day, although passing pretty good nights; and was ordered, on the 7th, beef-tea and arrow-root, and to take the mint-and-soda mixture three times a day: and on the 8th, as the bowels were relaxed, ten gr. of aromatic confection were added to each dose of the mixture: the pulse were 90, but very weak and soft; the tongue moist, and much cleaner. Four ounces of port-wine were allowed daily; and the patient being very weak, it was, on the 10th, increased to six ounces: the bowels were much less relaxed.

From this date he continued convalescing ; the bowels became regular ; he got up daily ; and on the 12th complained only of weakness, and was ordered two grs. of sulphate of quinine, five minims of acid. sulph. dil., and an ounce of inf. of orange-peel, three times a-day. He was allowed a pint of porter daily instead of wine, and meat diet ; under which he gradually gained strength, and left the hospital on the 16th.

CASE 9.

*Simple Fever.*

SUSAN FOLEY, aged 18, a servant, living in London, of temperate and regular habits, stout, and of light complexion, having generally enjoyed good health and lived well, was, fourteen days before admission, after exposure to wet and cold, affected with chilliness and shivering, followed by febrile symptoms, which gradually assumed an atonic form, becoming aggravated until November 16, when she was brought into Martha Ward, under Dr. Bright. Her aspect then was dull and heavy, and her intellect sluggish and wandering, with flushed face and general pungency and dryness of the surface, severe pain in the head, with occasional vertigo and delirium : the tongue was dry, furred, and rather brown in the centre, red at the tip and edges, with thirst and anorexia : the bowels confined, with flatulent abdomen and epigastric tenderness : the urine high-coloured, with a lateritious sediment : respiration hurried : the pulse 120, feeble, small, but rather sharp. She was ordered low diet, and to take eight gr. of hyd. c. cretâ, and half an ounce of castor-oil four hours after : the bowels were freely acted on ; and on the following day, the symptoms continuing, there being considerable tenderness at the scrobiculus cordis, and great intellectual dulness and heaviness, six leeches were applied to the scrobiculus cordis ; and two grs. each of hyd. c. cretâ and of ext. hyosc., and half a grain of ipecac., were given in a pill three times a-day, and fifteen gr. of sesquicarbonate of soda in mint-water every six hours. On the 19th there was less epigastric tenderness, but more wandering delirium ; the pulse very feeble, and the bowels regular : the mixture was repeated, and the pills without the hyosc. On the 21st, the bowels were relaxed ; there was less heat of surface ; the tongue was moist and less coated, and but slight delirium : the mixture was repeated, and the hyd. c. cretâ and ipecac. were given, with six gr. of pulv. cretæ comp., three times a-day. On the 23d there had been no delirium for two days, with less dulness of intellect ; skin moist ; bowels still relaxed ; the pulse 116, very feeble and soft. Beef-tea and arrow-root were ordered ; and fifteen grs. of aromatic confection were added to each dose of the mixture, and the powders continued. From this date, improvement was

progressive, and the bowels became more regular. The powder was, in a few days, reduced to one daily: there was no return of delirium. On December the 6th the pulse were 90, feeble, but fuller and soft, and the powders were omitted: the tongue was moist and clean, and the skin not above the natural temperature. On the 13th, still improving, the pulse being 85, feeble and soft, a mutton-chop was ordered daily: she daily gained strength; and by the 20th was able to walk about the ward; and, as the bowels were confined, a dose of hyd.  $\bar{c}$  cretâ and castor-oil, with six minims of tinct. opii, was given, which operated favourably; and continuing to improve, she left the hospital on December the 23d.

## CASE 10.

*Simple Fever.*

MARY LINDSAY, aged 29, a married woman, having been confined two months previously, of short small stature, and fair complexion, residing in the Kent Road, in the neighbourhood of which there is fever, and generally enjoying good health, was admitted into Martha Ward, under Dr. Bright, on December 7; having been attacked five days previously, after unusual exertion and fatigue, with shivering, pain in the head, with great lassitude and stiffness in the limbs, and a confined state of the bowels, which were followed by pyrexial symptoms, which were prescribed for before admission, without benefit. When admitted, she was suffering from much prostration; her countenance and intellect were dull; the skin was hot and dry, with maculæ on the chest, abdomen, and arms; and she complained of pain and weight in the head, with vertigo; her respiration was hurried, and there was slight cough, without expectoration; the pulse 112, jerking and incompressible; the tongue injected, with a moist fur in the centre; the bowels were confined; the urine scanty, and high-coloured.

She was ordered to have low diet, with beef-tea and sago, and to take 2 gra. of hyd.  $\bar{c}$  cretâ and half a grain of ipecacuanha, twice a-day, and 10 gra. of sesquicarbonate of soda in mint-water three times a-day.

On the 8th, the bowels were slightly open; she was rather delirious, and the lips were dry and brown, and the pulse 112, jerking, hard.—To take two drachms of castor-oil. The bowels were open once after the castor-oil, and the patient complained of pain in the side and between the shoulders: she began to feel very low and sinking, and the pulse became softer and more feeble; and on the 10th, another dose of castor-oil was required: the powders were given three times a day; and the mint-and-soda mixture continued.

On the 12th, she felt somewhat better: the skin was cooler: she complained of slight pain in the chest, with difficulty of breathing:

the tongue was less coated, and the lips were moister; the pulse 100, feeble: she had slight pain in the head, and was restless during the night. On the following day she felt better, the pulse being 132, small and feeble; the tongue and lips were dryer, with a tendency to sordes; the bowels were three times loosely evacuated. On the 14th she was delirious during the night; the countenance was oppressed, and the eyes suffused; abdomen tender: there had been six loose evacuations; pulse 120, jerking, feeble. Ten minims of ipecacuanha-wine were added to each dose of the mixture; and she was again better on the 16th, the tongue being cleaner, but very red; the pulse 100, fuller and softer: the bowels not open, but were so three times on the 15th, and the head was still painful.

On the 17th, the pulse were 88, fuller and soft; the tongue cleaner, and the appetite improving; and from this period convalescence began. She continued, however, very weak, with occasional faintness: the powders were reduced, on the 20th, to one every night. She continued improving every day, but very slowly regaining her strength, until the 27th; when the bowels had not been open for two days, and her rest had been disturbed during the previous night by pain in the stomach: the pulse were 88, small, feeble: the tongue clean, and the skin cool. Four grains of hyd.  $\bar{c}$  cretâ, and 3 drachms of castor-oil, were given, which acted freely, producing some slight depression: she continued, however, improving; and on the 31st, four ounces of wine and inf. of serpentary were ordered. She continued to improve; and on Jan. 7th, a mutton-chop was allowed, her appetite being good, and the pulse 70, soft, compressible, but stronger. The powders were omitted on the 14th January, the gums being very slightly tender and red: she continued very weak, and varied much, being one day much better, and the next day not so well again; but, on the whole, slowly improving.

On the 17th, four grains of sesquicarbonate of ammonia were added to each dose of the serpentary; and she continued slowly progressing till the 21st, when catarrhal sore-throat and febrile symptoms appeared; yielding, however, in five or six days, to saline mixture, with acetate of ammonia, alum-gargle, and the application of the liniment of ammonia to the throat; and on the 28th, infusion of serpentary, with acetate of ammonia and two drachms of oxymel simplex, were given, as there was slight cough, and the relaxation of the fauces continued. She continued the alum-gargle, and took her four ounces of port-wine daily, with middle diet. From this period she continued slowly gaining strength, but varying a good deal; the bowels becoming relaxed on the 14th Feb., and requiring the administration of chalk-mixture, which checked it in two or three days; and she again gained

strength, but very slowly ; managing to get about the ward during the greater part of the day, but complaining much of weakness at times : but by the 28th Feb. she was convalescent, and much stronger, though still feeble and varying.

## CASE 11.

*Simple Fever.*

WILLIAM THOMPSON, aged 23, single, a wine-cooper, residing in the Blackfriars' Road, of intemperate habits, and generally enjoying good health, but having during the present winter lived very badly, was admitted into Job Ward, under Dr. Babington, on February 8, 1843, having three weeks previously been attacked with pain in the limbs and back, with chilliness, hoarseness, and occasional shiverings, followed by relaxation of the bowels and pyrexia, which continued to the time of admission ; when his countenance was heavy and dull ; his answers were rational, but hesitating and slow, and his voice very hoarse ; the skin was hot and dry, and the abdomen covered with maculæ ; the tongue injected, and coated with a brownish fur, and rather dry ; great thirst and anorexia : there was abdominal tenderness on pressure, and the bowels were relaxed ; the respiration hurried, with a troublesome dry cough ; and mucous râles were heard over the anterior parts of the chest. He had no pain in the head, or delirium, but lay on his side in bed, and appeared very drowsy ; the pulse 110, moderately full, but feeble : he complained of great weakness and prostration, and was much exhausted. Was ordered to have low diet, with beef-tea and arrow-root, and to take ten grains of aromatic confection in ammonia julep three times a-day.

On the 9th, he was much the same : his bowels had not been open : was less exhausted than yesterday. Ordered, the effervescing saline mixture of lemon-juice and carbonate of potash every four hours.

On the 10th, the hoarseness continued, and the cough was more troublesome, with pain beneath the sternum : the same mucous râles were heard pretty generally over the chest, and more maculæ appeared on the abdomen : the bowels were open ; the abdomen tender ; and the evacuations loose and yellow : he was still very weak, and heavy, and was ordered three grains of sesquicarbonate of ammonia in an ounce and a half of infusion of cusparia three times a day ; and a blister was applied to the chest.

On the 11th, he had passed a good night : the tongue was coated with a whitish fur ; the bowels were relaxed ; the pulse 120, very feeble ; the cough was much better. A starch injection with twenty minims of tincture of opium was administered, and a scruple of

aromatic confection was added to each dose of the mixture. He continued for some days very weak, with occasional twitchings of the muscles of the face, and sometimes muttering delirium, and the tongue was brown and dry: the bowels, however, were more comfortable, the maculæ were considerably diminished in number, and there was some return of appetite.

On the 14th, he was again better, and the tongue was moister: the pulse 110, and the cough and hoarseness almost gone. He gradually gained strength, with an improved appetite; and his tongue became moist and clean, and the bowels continued regular: and on the 20th he was put on meat diet, and got about the ward; and by the 25th was quite convalescent.

## CASE 12.

*Fever with Cerebral Complication.*

PETER RYDER, aged 40, of middling stature, but rather emaciated, had been ailing for some months, with occasional pain in the head and slight cough; and was, a week ago, attacked with chilliness, pains in the limbs, and general lassitude, succeeded by thirst and heat of surface; which continued and increased, until his admission into Lazarus Ward, under Dr. Bright, on December 7; when he had a hot pungent skin, a flushed face, with confused heavy aspect, and dull intellect: complained of slight pain in the forehead, and vertigo; his respiration was hurried; pulse 120, feeble; the tongue was injected at the tip and edges, with a dry furred surface; great thirst, and anorexia; the bowels were relaxed, with watery dejections; urine turbid, scanty, and high-coloured, not albuminous; his position in bed was supine, and sunken. He was ordered to have low diet, with arrow-root and beef-tea; and to take two grains of hyd. c̄ cretâ and eight grains of pulv. cret. comp. three times a day, and ten grains of sesquicarbonate of soda in mint-water every six hours.

On the following day his bowels had not been open; and he was so dull and heavy, that an answer could scarcely be elicited from him. He was ordered two drachms of castor-oil directly; and to be repeated in four hours, if necessary.

On the 9th, there was increased heat of the head, with more pain; and he became delirious during the night: the pulse were 126, very feeble. An evaporating lotion was applied to the shaven head; and two grains of hyd. c̄ cretâ were given every six hours; and four grains of sesquicarbonate of ammonia, three drachms of liquor ammon. acet., and an ounce of infusion of serpentary, at the same intervals. The bowels were open.

On the 11th, he continued delirious, and muttered incoherently



when addressed : his tongue was dry, and coated with brown fur : pulse very frequent, and thready.

On the 13th, there was picking of the bed-clothes, and he became insensible, but rallying under the exhibition of stimulants. The julep. ammoniæ was given at intervals. His breathing became slow, laborious, and almost stertorous ; and there was great lividity over the chest. Pulse became almost imperceptible ; subsultus tendinum ensued ; and he gradually became lower, and the eyelids gaping, the breathing more difficult, with greater lividity of the surface, face, and tip of the nose ; and he died at half-past two in the afternoon.

No post-mortem inspection was allowed.

#### CASE 13.

##### *Fever with Cerebral Congestion.*

ELLEN POULTON, aged 18, having been ill fourteen days, was admitted into Dorcas Ward, under Dr. Babington, on November 9th, 1842. Is of slight stature, light, and with a muddy complexion ; and of rather irregular habits ; residing in a court in Fleet Street : was attacked with the usual premonitory symptoms of fever fourteen days ago, and has been since suffering from the following symptoms, which presented themselves on admission : a dull heavy aspect, and slow sluggish intellect ; with considerable heat and dryness of the surface, and maculæ on the chest and abdomen ; muscular prostration, with great lassitude ; pulse 95, rather jarring, but feeble ; bowels confined ; tongue injected, furred and moist in the centre, dry at the tip ; respiration hurried ; slight tenderness at the epigastrium and over the abdomen ; pain in the head ; and livid congestion of the conjunctivæ.

She was ordered low diet, with small quantity of arrow-root ; and to have the head shaved ; and take five gr. of hyd. c̄ cretâ, and three drachms of castor-oil, which twice evacuated the bowels ; and she had ten grs. of sesquicarbonate of soda in mint-water every six hours.

On the following day she was much the same : pulse 100, rather sharp, but still feeble.

On the 11th, symptoms of great cerebral congestion appeared : the head was very hot, and there was great congestion and lividity of the face and conjunctivæ. She was conscious, and free from delirium, but could not articulate ; and lay on her side, but varied her position in bed. The pulse 120, feeble, but rather sharp ; the tongue drier, and furred, with a disposition to aphthæ on its edges. A dose of hyd. c̄ cretâ and castor-oil was given ; a blister was applied to the nape of the neck, and sinapisms to the feet.

On the following day she was no better, but presented the same symptoms : the bowels had been open, and the blister had caused

vesications. Twelve leeches were applied to the temples; and two grains of calomel, and three of James's powder, were given three times a day, with each dose of the mixture; and beef-tea ordered to be given at short intervals. She was immediately relieved after the application of the leeches, regained her articulation, and the congestion was much diminished; and during the following days gradual amendment took place.

On the 16th, the pulse were 84, fuller, soft, and feeble: the tongue was clean, but morbidly red: respiration was hurried, with a troublesome dry cough; but nothing excepting an occasional dry ronchus was heard, on auscultation. Infusion of serpentary with liq. ammon. acet. was prescribed three times a-day. She continued improving, the skin being moderately hot and less harsh, but the cough being very troublesome; and on the 19th, not getting much rest on account of the cough, a quarter of a grain of acetate of morphia was given at bed-time; and half-a-drachm of syrupus papaveris, and the same quantity of oxymel scillæ, in mucilaginous mixture, were substituted for that last ordered; and eggs and milk diet were allowed. The cough was relieved, and but few febrile symptoms remained: the pulse improved in power, and there was but little thirst or heat of skin: the tongue was moist, clean, and less red.

On the 26th, she was ordered an ounce of the infusion of serpentary three times a-day, and a mutton-chop; and in a day or two she got about the ward, rapidly regained her strength, and left the hospital on January 9th.

#### CASE 14.

##### *Mild Fever, with great Cerebral Oppression.*

DANIEL NORTON, aged 11, a delicate-looking child, whose family have been suffering from fever, was taken ill about three weeks before admission, with chills, pain in the head and limbs, and lassitude; which, with febrile symptoms, drowsiness, and dulness of intellect, gradually increased until November 2, when he was admitted into Job Ward, under Dr. Bright; complaining of pain in the head; tenderness and uneasiness at the epigastrium; with great drowsiness, and a dull heavy countenance, the eyes being slightly suffused, and the skin hot and dry; the tongue red at the tip and edges, with a whitish moist fur in the centre: the bowels were open under the use of aperients; the urine was scanty and high-coloured; and the pulse 110, small, weak, and rather jarring. The head was shaved; and he was ordered low diet, with beef-tea and arrow-root; eight grains of sesquicarbonate of soda in mint-water every six hours; and five gr. of hyd. c̄ cretâ at bed-time, and two drachms of castor-oil in the morning.

On the 3d, he was still very drowsy, with pain in the head : the pulse 100, softer ; the skin hot ; and the bowels had been once open. An evaporating lotion was applied to the scalp, and the mixture continued.

On the 4th, with the exception of the pain in the head and drowsiness, he was improved. Two gr. of hyd. c cretâ were ordered three times a day.

On the 5th, he was less drowsy, with less pain in the head ; pulse 120, small, feeble ; he had a slight dry cough ; the bowels were regular. To have linctus when the cough is troublesome, and take his powder twice daily, continuing the mixture.

On the 7th he had no headache, but was drowsy and dull ; bowels were regular ; tongue moist, cleaner ; pulse 120, fuller ; the cough much easier. To omit the linctus, and continue the mixture and powders ; and apply a blister to the nape of the neck.

After this date, the drowsiness was much diminished ; the pulse varying from 100 to 110, and feeble ; the bowels were regular, and the evacuations healthy ; the skin was cooler, and moister ; and the tongue became clean by the 15th, when he was still rather drowsy and heavy : he was then ordered to take his powder twice only daily, and to have milk with his arrow-root.

On the 17th, he was more lively, but the bowels were confined ; and a dose of castor-oil was given. He continued the powders and mint-and-soda mixture, with an occasional dose of castor-oil. He gradually improved, but remained for some time in a drowsy state, lying in bed with his arms and knees folded, regaining his strength by degrees : and having got about the ward by November 22d, was put on meat diet ; and, with returning health and strength, left the hospital on December the 10th.

#### CASE 15.

##### *Severe Fever, with Hysteria and Cerebral Affection.*

EMILY HALL, a single hysterical girl, aged 20, living as a servant in the Borough, was admitted, under Dr. Bright, into Martha Ward, on December 11th, having been ill fourteen days. Having been exposed to cold, and undergone much fatigue, she was attacked with rigors, followed by severe pain in the head, with lassitude, aching in the limbs, and general pyrexia. Aperient medicines, and the application of leeches to the head, produced temporary relief ; but the symptoms were afterwards aggravated, till the period of admission, when she presented a dull oppressed countenance, and was slow in answering and dull of comprehension : there was a hot dry skin, flushed face, and slight pain in the head, with abdominal tenderness : she was

delirious at intervals, especially during the night: the respiration was hurried; the pulse 100, moderately full, and sharp; the tongue was injected, and covered with a dry brown fur; the mouth and throat clammy, and covered with adherent mucus, and the teeth beset with sordes: great thirst, and anorexia: the bowels were regular, and the evacuations liquid: she had not menstruated for eight weeks. She was ordered to have low diet, and to take 10 gr. of sesquicarbonate of soda three times a day in mint-water, and 4 gr. of hyd.  $\bar{c}$  cretâ, followed in four hours by half an ounce of castor-oil; after which she had six or seven liquid evacuations; and on the 12th she expressed herself free from pain: but on the 13th, after a restless night, with noisy delirium, pain in the head was increased, with vertigo: the pulse 110, small and intermitting; the lips were more parched; the tongue was more foul, and covered with dark fur; the bowels were open. Three grains of hyd.  $\bar{c}$  cretâ and half a grain of ipecac. were ordered every night; an evaporating lotion was applied to the head; and the mixture was continued. From this period she continued much the same, passing delirious nights, until the 16th; when, having slept much better, though still disturbed by spectral illusions, the tongue was cleaner and moister; the pulse 132, weak and small; and the bowels open.

On the 17th, she complained of tenderness, on pressure, in the hypogastric and left lumbar regions, with a rather relaxed condition of the bowels. She was ordered to continue the mixture, and to take a grain of hyd.  $\bar{c}$  cretâ, half a grain of ipecac., and eight of pulv. cret. comp., three times a-day: and on the 19th, having been very noisy and delirious during the night, and the bowels, which had been more regular, being again much relaxed, a starch-injection, with half-an-ounce of syrup of poppies, was given; after which she was much more composed and comfortable: the abdomen still continued tender; the tongue was much cleaner, but very red and injected; the pulse 110, soft, feeble. This amendment continued until the 21st, when she became prostrate in bed, moaning, and much oppressed: the bowels were then more relaxed; the pulse 126, small, feeble, but sharper; the tongue dry, and red. Chalk-mixture, with eight minims of ipecac. wine, were given every four hours, and one of the powders every night.

The bowels continued relaxed, but less so, and she was delirious and restless at night, till December 24th, when she had slept better: the tongue was moister, and clean; the countenance improved; and the pulse were 110, fuller, but still rather sharp. Beef-tea and arrow-root were given, and six grains of ext. papaveris, one of hyd.

$\bar{c}$  cretâ, and half a grain of ipecac. every night, and the chalk-mixture continued.

She continued improving; the pulse becoming softer, and about 100; the tongue less injected, and moist; and the bowels more regular: but she slept badly, though without delirium. She remained more intelligent, until the 29th, when delirium, with great oppression and prostration, again appeared; the pulse rose to 120, became fuller, and sharp; the tongue coated; the face flushed; and scarcely could an answer be obtained from her: the bowels were open once. She was prescribed a grain and a half of calomel, two of hyd.  $\bar{c}$  cretâ, and five of ext. of hyosc., night and morning, and the chalk-mixture if required.

She got worse until January 3d; becoming very delirious, with hysterical laughs and shrieks, and apparently insensible to questions addressed to her. A grain and a half of camphor was added to each dose of the pills.

On the 4th, she was more oppressed, almost comatose, lying supine, with the head sunken, and the tongue dry and brown: the pulse 120, feeble, jarring: the bowels relaxed. A blister was applied to the nape of the neck; the chalk-mixture and ipecacuanha continued; and the pills given every four hours.

On the 5th she seemed much relieved, answering questions, and had less prostration: the tongue was moister and cleaner; and as there was no mercurial action on the gums, ung. hydr. was rubbed into the axilla, twice daily, and the pills continued.

She was till improving on the 7th. The gums were rather tender, and red at the margins: she complained only of slight pain in the head. The ointment was used every night, and the pills taken every six hours; and a mutton-chop was ordered, and chalk-mixture should the bowels become relaxed. The gums becoming more tender, the ointment was omitted on the 10th, and the pills were taken every night only. She was then very much improved: the pulse were 100, soft, but feeble; the appetite returning; the bowels regular; the skin cooler; and the tongue moist and clean: slept well; but had a frequent hysterical laugh.

On the 14th, 2 gr. of camphor and 3 of ext. hyos. were ordered every night, and the other medicines omitted; and, with occasional hysterical symptoms, she continued improving until the 23d; when pain appeared in the right ear, with deafness and otorrhœa. Three leeches were applied behind the ear, and a poultice. These symptoms subsided in a few days; her health and strength gradually improved; and, continuing hysterical at times, she was well enough to leave the hospital on Jan. 31st, having been about the ward for a week or two.

CASE 16.

*Fever, followed by Otorrhæa and Scabies.*

JOHN SAYER, aged 30, a labourer, of small stature, and intemperate habits, residing in a low part of the Borough, where fever prevailed: has been much exposed to vicissitudes of weather. Was admitted into Job Ward on Nov. 9, under Dr. Bright, having been attacked three weeks previously with chilliness, followed by lassitude, pain in the head and limbs, with thirst, and increased heat of surface, which have been gradually increasing to the time of admission; when, with the above symptoms, he had pungent heat and dryness of surface, with maculæ on the abdomen: the face was flushed; the head hot, with occasional delirium, and sleeplessness: his countenance was dull, heavy, and stupid; his eyes suffused, and conjunctivæ injected. Respiration was hurried, with cough and slight mucous expectoration: the pulse was 120, small, but sharp: the tongue injected at the tip and edges, coated with white fur, and rather dry: he had thirst, and anorexia: bowels have been relaxed for some days: he varies his position in bed, chiefly lying on his side.

He was put on low diet, and ordered 15 grs. of sesquicarb. of soda, and 15 minims of poppy syrup, every six hours, in mint-water. On the following day he had passed a restless night: the bowels were confined, and the head still painful and congested: it was ordered to be shaven; and 3 grs. of hydr. c. cretâ were given three times a-day, and the mixture continued.

On November 12th, the pulse was 126, smaller, but softer; the pain in the head and limbs had left him; the tongue was cleaner and moister; the thirst diminished; the bowels open, and the evacuations healthy; his cough had left him; and respiration was less hurried.—To have beef-tea and arrow-root. He gradually improved; slept better; but on the 12th, the bowels being too relaxed, and the pulse 110, he was ordered 15 grs. of aromatic confection and an ounce of chalk-mixture after each loose evacuation; to omit the mercurial; and to continue his mixture of mint and soda. He required only two or three doses of cretaceous mixture, and daily improved; the skin becoming cooler and moister; the tongue clean; and the thirst moderated. His appearance and manner were getting more lively; the pulse diminishing in frequency, and fuller and soft, and on the 18th it was only 70; the appetite improved; and the bowels regular: but on the 23d they required the exhibition of 3 grs. of hydr. c. cretâ and ʒiij. of castor-oil, which acted very favourably. At this period he became very heavy and sleepy, curling himself up in bed, and sleeping during the greater part of the day; and the skin

became hotter; the pulse 80, and rather fuller. Dr. Bright ordered him to return to low diet. He continued rather drowsy and heavy for some days; but gradually improved in strength and regained his appetite, but was still weak: and on the 29th, deafness, with slight pain and discharge from the ear, appeared. The pain diminished under the use of poultices: the discharge diminished, but still continued, with deafness, till the 1st of December, when scabies appeared over the body. Being, however, quite convalescent on Dec. 3d, he left the hospital.

## CASE 17.

*Fever, with Cerebral Complication—Death.*

THOMAS BERTLAND, a butcher, of middle stature, and intemperate habits, living in an unhealthy locality, but where there was no evidence of the prevalence of fever, was admitted into Job Ward, under Dr. Babington, on January 18, 1843, having, seven days before admission, been attacked with severe pain in the head, aching of the loins and limbs, with muscular prostration: he had not felt well for a day or two prior to this attack; and two days after it, with a confined state of the bowels, he had vomiting, his face became very flushed and turgid, and the conjunctivæ congested, with occasional delirium, which became of a more severe kind until his admission; when there was great vascular congestion of the face, head, and eyes, with stupor and intellectual dulness, and throbbing of the cervical vessels: the pulse was 114, hard; the skin was very hot and dry; and numerous maculæ were seen on the arms, chest, and abdomen: the tongue was injected, and with a moist fur in the centre. He does not complain of much pain in the head, nor has he manifested any delirium since admission. The bowels were very much relaxed, and the abdomen tender on pressure: the evacuations were yellow and liquid, and the urine scanty: he is very weak: lies on his side in bed. Leeches had been applied to his temples before admission. He was ordered low diet, with arrow-root; and an evaporating lotion was applied to the shaven head: and chalk-mixture, with ten grains of aromatic confection, was given after each loose evacuation.

On the 19th, the bowels continued very much relaxed; the tongue was becoming dry and brown; the pulse was softer and weaker; and the head and face still very much congested: he had been delirious during the night. Half a drachm of tinct. catechu was added to each dose of the mixture, and poppy-head fomentations were ordered to the abdomen.

On the 20th, he was no better; and had slight subsultus tendinum and muttering delirium, the tongue becoming more dry and brown, with sordes on the teeth.

On the 21st, he was very low: pulse was 120, feeble, small, and vibratory: the tongue was dry, brown, and cracked: sordes on teeth, lips, and gums: was very delirious and raving in the night, disturbing the whole ward: had less congestion about face and head: lay prostrate and almost insensible in bed: the bowels continued much relaxed: the urine scanty. He was ordered four ounces of port-wine, and a scruple of aromatic confection in the infusion of cusparia, with four minims of the tincture of opium, every six hours. The diarrhoea was arrested, but no amendment of symptoms ensued; and on the 23d there was very great typhoid depression, with low muttering delirium, and almost constant subsultus tendinum: the bowels were not open; the pulse was very frequent, small, and thready; the tongue very dry, brown, and covered, as well as the lips and teeth, with sordes; and he was scarcely sensible. A blister was applied to each temple, a terebenthinate enema was given, and half a drachm of spt. ammon. arom. was substituted in each dose of the mixture for the tinct. of opium. In the afternoon, not having passed any water for twenty-four hours, eight ounces were drawn off by a catheter. He continued, however, sinking gradually, with convulsive twitchings of the muscles of the face, and died about 5 o'clock.

No inspection was allowed; but decomposition rapidly commenced.

#### CASE 18.

##### *Fever, with Cerebral Complication—Convulsions, and Death.*

GEORGE CARTER, aged 38, a shoemaker; married; of temperate habits, middling stature, but rather thin: has generally enjoyed good health, but was debilitated from bad living previously to the present illness, which commenced ten days before his admission, when he was attacked with rigors, lasting several hours, and followed on the next day by febrile symptoms, with great lassitude, muscular prostration, and pain in the head, with delirium; which symptoms grew worse till the time of admission, on Oct. 26, 1842, under Dr. Bright; his countenance then being dull and anxious; his manners and answers incoherent; the skin pungently hot and dry, with maculæ on the chest and abdomen; the face being turgid, and the conjunctivæ injected; there was delirium, and at times severe pain in the head, as also in the back and loins; and the sense of hearing was morbidly acute: the pulse was 110, very feeble, and rather jarring: the tongue was injected at the tip and edges, dry, brown in the centre, and tremulously protruded: the mouth dry and parched, with thirst and anorexia: bowels confined: urine very scanty and high-coloured: he lay on his back: was very weak and restless. He was ordered low diet, and to take six grains of hydr. c. cretâ directly; and three drachms of castor-oil in four

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hours; and to take 15 grs. of sesquicarbonate of soda in mint-water three times a-day.

On the 27th, the bowels were moderately open, the dejections yellow and watery: urine scanty, and very deep-coloured: the skin not nearly so hot, but dry: great pain and heat about the head, with delirium: position supine, and low down in the bed.—To repeat the castor-oil and mixture.

On the 28th, his intellect had become more dull, with muttering delirium: bowels were confined: he complained of pain in the hypogastric region, on pressure; but there was no fulness: the urine was very scanty: pulse 120, very feeble, but jarring: maculæ of darker colour, and very abundant: the head hot, the eyes suffused, and conjunctivæ injected: general surface cooler: prostration very great. He was ordered 15 grains of rhubarb and calomel directly, and to continue the mixture, and apply an evaporating lotion to the shaven head.

On Oct. 29, he was reported as having passed a very restless night, with raving delirium, now low and muttering, lying apparently motionless in bed: the tongue was dry and brown: pulse 130, very feeble: skin below the natural temperature: still tenderness in the hypogastric region, but the bladder was not distended: bowels were open last night, and at same time he passed some urine, but none had been passed since. He was ordered three grains of hydr.  $\bar{c}$  cretâ night and morning, and a castor-oil enema if necessary. In the afternoon he was seized with convulsive spasms, which gradually became more severe. An injection of infusion of senna and sulphate of magnesia was administered; a blister was applied to the nape of the neck, and sinapisms to the soles of the feet, but without any beneficial result; as in the course of an hour he had fresh convulsions, in one of which he sank: the maculæ had assumed the character of petechiæ.

*Morbid Appearances*, forty-two hours after death.—There were petechial spots beneath the peritoneal coat of the intestines; the glands of Peyer were prominent, but not ulcerated; and the lower part of the mucous surface of the ileum was much congested, with a few spots of ecchymosis: the liver was rather congested: the spleen was large, congested, and very lacerable.

Both kidneys were very much congested, large, and flabby, their structure coarse; and there was a large cyst, intersected by fibrous septa, in the left, containing a grumous dark-coloured fluid.

The bladder contained a small quantity of urine, which was albuminous.

*The Head*.—There were numerous glandulæ Pacchioni at the vertex; and there was slight sub-arachnoid effusion on the convexity of the

hemispheres; and there was ossific deposit in the inferior border of the falx major, to the extent of an inch or more: the cerebral vessels were congested, and the puncta vasculosa numerous: the ventricles contained a small quantity of straw-coloured fluid.

CASE 19.

*Fever, with Pulmonary Congestion.*

EDWARD DUNCAN, aged 24, a wharf-labourer, much exposed to wet and cold, and of intemperate habits, was seized ten days before admission, after getting wet and sleeping in his wet shirt, with chilliness, pain in the head, and vertigo; with lassitude, aching pains in the limbs, thirst, anorexia, and constipated bowels: two days after which he experienced pain in the anterior part of the chest, with difficulty of breathing, with expectoration of greenish matter, which increased in quantity, and gradually became grumous and bloody; and the symptoms continued till December 6, when he was admitted into Job Ward, under Dr. Bright. His aspect was then pale and anxious: his comprehension dull and heavy: he had great pain in the head, with intolerance of light and sound, and great prostration of strength: the skin was hot and dry, but he complained of feeling cold and chilly: maculæ were present on the abdomen and back: the tongue injected, and slightly furred; with thirst and impaired appetite: bowels had been relaxed for some days. Respiration was hurried and laborious; there was slight dulness on percussion over the inferior part of both lungs, posteriorly; and mucous crepitation was heard: he had troublesome cough, with copious grumous bloody expectoration: the pulse was 120, weak, but rather sharp. He was ordered to have low diet, and to take 15 gr. of sesquicarbonate of soda, three times a-day, in mint-water; and 3 gra. of hyd. c. cretâ, and 4 of pulv. cretâ comp., every six hours.

On the 7th his face was flushed, the skin hotter, and the conjunctivæ injected, with pain in the head: the bowels still relaxed, and the evacuations of light-yellow colour, and fluid. He was ordered to omit the powders, to continue the mixture, and to take a dose of mist. cretâ comp., with aromatic confection, occasionally.

On the 8th the diarrhœa had been relieved by the chalk-mixture: the pain in the head continued severe, with intolerance of sound, but without delirium: respirations very hurried, 48 in the minute: pain in the front of the chest, with bronchial râles heard on auscultation: pulse 126, rather sharp, but feeble: the skin continued hot. A blister was applied over the sternum; an evaporating lotion to the shaven scalp; and the mint-and-soda mixture was repeated.

On the 9th, he was much weaker and more prostrate: the head

continued very painful, with slight deafness, but intolerance of loud noises: the face was less flushed, and there was morbid sensibility of the whole body: the skin was hot, dry, and pungent; and the maculæ of a darker colour, and more abundant: the pulse was 126, very feeble, but still rather sharp: the tongue was becoming brown in the centre, and dry; with sordes on the teeth and gums: expectoration was less, with clots of dark-coloured blood in it. He was ordered beef-tea and arrow-root, and to continue his medicine. After this date he improved; the tongue continued dry and brown for some days, but gradually became cleaner and moister: the bowels were pretty regular; the cough better; expectoration diminished, and became less grumous; mucous crepitation continuing, however, for some time, at the base of the lungs, posteriorly, and sibilant râles in different parts of the chest: his skin was cooler and moister. On the 15th, he was able to sit up in bed: the pulse was 96, softer and fuller; respiration was less hurried; and he was in every respect improving, and the tongue was moist, with but a slight fur. He was ordered an egg daily; and continued improving, slowly regaining his strength; and on the 24th, complaining only of weakness; the pulse being 84, fuller, soft, but weak, and the crepitation having given place to healthy respiration, he was allowed middle diet, and continued convalescing until the 10th of January, when he left the hospital.

#### CASE 20.

##### *Fever, with Pulmonary Congestion.*

MATILDA MATTHEWS, aged 23, of light sallow complexion, strumous habit, and middling stature, was admitted into Charity Ward, under Dr. Babington, on Nov. 9, 1842, having been attacked, seven days previously, by rigors, vertigo, pain in the head and limbs, which were followed by pyrexia, great lassitude, and muscular prostration; and the bowels became relaxed, and continued so to the time of admission; when she presented a heavy, stupid aspect, and dull comprehension: she lay supine and sunken in bed, and was much debilitated: respiration was hurried, with troublesome cough, and slight sonorous râles posteriorly at the base of the lungs: the skin was hot and dry, but not pungent, and covered with maculæ, especially on the chest and abdomen, which latter was tender on pressure; and the liver was felt slightly below the ribs. She complained of nausea and slight sickness on taking any thing. The tongue was moist, but much furred in the centre; red at the tip and edges: lips parched, with much thirst and anorexia: pulse 120, feeble, rather jarring. The head was shaven; and the infusion of serpentary, with acetate of

ammonia, was given every four hours; and beef-tea and arrow-root, with fever diet, were allowed.

On the two following days the tongue became drier, and the skin continued hot and dry; the cough was more troublesome; and she was delirious: the bowels were not open: and on the 11th an enema of castor-oil was given, which acted twice; but the cough continued very troublesome, with expectoration of grumous sanguineous mucus; and mucous râles were heard posteriorly: the pulse maintained its frequency, but was sharper: there was great heat of surface, though the skin was moister, and the face was much flushed, with occasional delirium, and great thirst, until the following day, when *jul. ammon. acetatis* was substituted, for the other medicines; and an evaporating lotion was applied to the head. From this date the symptoms gradually abated; the sanguineous expectoration continued for some days; the skin became cooler; the tongue moister and cleaner; the pulse fuller, softer, and less frequent, but very feeble; the bowels were rather relaxed; and, on Nov. 16, infusion of *cusparia*, with half a drachm of the tincture, was ordered four times a day. After this, the bowels became more regular, and the patient gradually improved in every respect, but continued exceedingly weak; and on the 20th was ordered four ounces of port-wine daily, and middle diet; and on the 24th, infusion of *serpentry*, with tincture of *cinchona*, were substituted for the *cusparia*. She gradually improved, the febrile symptoms having quite left her—but remained very weak; of which alone she complained, when, on December 11, she left the hospital.

CASE 21.

*Severe Fever, with Pleurisy.*

ELIZABETH THOMAS, aged 19, of dark complexion and middle stature, by occupation a trunk-maker, residing in a part of the Borough where fever was prevalent, was admitted into Lydia Ward; under Dr. Bright, on November 16, 1842. She is of regular and temperate habits, and generally enjoying good health; and was, six days before admission, attacked with pain in the head, limbs, and chest, which were followed by thirst, nausea, and vertigo; and two days afterwards had a short cough, with pain in the left side, increased on a full inspiration, and by pressure. These symptoms continued till her admission; when the skin was hot and dry, and the abdomen and chest covered with bright-coloured maculæ: the face was flushed; the intellect dull; and the conjunctivæ injected: the tongue red at the tip and edges, and coated with a moist white fur, with thirst and anorexia: the pulse was 120, incompressible: she

had great pain in the head, and pain in the left side, which was increased on pressure and by a full inspiration, though she occasionally heaved a sigh, apparently without pain: respiration was hurried: there were no stethoscopic indications of disease: the bowels were open: the urine scanty, and high-coloured: menstruation regular. Ordered low diet, and to take 2 grs. of hydr.  $\bar{c}$  cretâ, 2 grs. of ext. hyosc., and half a grain of pulv. ipecac., three times a day, and 3 drachms of castor-oil the following morning.

On the 17th, the bowels were freely open, and the urine was more copious: the pain in the head and chest was increased; and respirations were 40 per minute: the skin very hot and dry: the pulse 120, still hard and sharp. The pills were continued, the head was shaved, and ten leeches were applied over the left side; and 10 grs. of sesqui-carbonate of soda in mint-water were given every four hours.

She passed a better night, and the pains were much relieved on the following day. Respiration was less hurried, and slower; the bowels relaxed, evacuations watery; the skin was still hot and dry, with occasional rigors; the pulse was 130, fuller and softer. Ten minims of syrup of poppies were added to each dose of the mixture.

On the 18th, the pains were again aggravated, and there was more thirst and heat of surface: the bowels were not open; and the pulse was sharper: the urine copious. She was cupped over the left side to eight ounces, and continued her medicines.

On the 20th, the pain was less: pulse was 130, weaker: the urine passed unconsciously during the night: bowels not being open, enema  $\bar{e}$  decocto avenæ was exhibited, and a linseed-meal poultice was applied to the side; and on the following day she could bear pressure on the affected side with but little pain. The gums were tender; the tongue coated, brownish in the centre; and the bowels were open: respiration still hurried, and with some uneasiness. The pills were given every night only, a blister was applied to the sternum, and the mixture continued.

On the 22d respiration was easier; there was great heat and dryness of the surface; and the tongue was coated with a dark-brown fur in the centre, with sordes on the teeth and gums: pulse 136, very feeble: bowels not open. Four grains of hydr.  $\bar{c}$  cretâ were given, followed, in four hours, by two drachms of castor-oil, and the mixture and pills continued.

On the 23d the bowels had been twice copiously evacuated: there was less pungency of surface, and diminished thirst: the tongue was moister: the pulse 120, feeble. Beef-tea and arrow-root were ordered.

On the 25th, a dose of castor-oil was given, which opened the bowels once. There was recurrence of the pain in the head; the

tongue was drier; the pulse 26, stronger; the gums scarcely at all affected by the mercurials. Two grains of hydr.  $\bar{c}$  cretâ were ordered three times a day, an evaporating lotion was applied to the head, and the mint and soda continued. From this period she gradually convalesced: the tongue, teeth, and mouth, became clean and moist; the pulse reduced to 85, and with more power and volume; but the gums were tender and spongy; and the hydr.  $\bar{c}$  cretâ was omitted on the 27th, and the mixture continued; and with the addition of a chop to her diet, and the exhibition of a dose of hydr.  $\bar{c}$  cretâ and castor-oil when the bowels were confined, she became quite convalescent, and much stronger; and left on Dec. 20th.

## CASE 22.

*Fever with Bronchitis—Death.*

THOMAS WICKETS, aged 42, a bricklayer from Birmingham, but lately resident in the Borough, short, and stoutly built, of temperate habits, and generally enjoying good health, was admitted into Lazarus Ward, under Dr. Addison, on February 15, having been ill one week; at which period, having been exposed to snow and rain, he was attacked with chilliness, pain in the head and limbs, followed by heat and dryness of the skin, with thirst and diarrhœa; being also occasionally sick after taking food. On admission, the eyes were suffused and injected; his aspect dull and heavy, and his intellect confused: the skin was very hot and dry, and there were numerous maculæ on the abdomen and chest: frequent cough, with hurried respiration, and expectoration of viscid mucus, occasionally mixed with a small quantity of blood: mucous râles were heard over various parts of both lungs; and the chest was resonant on percussion: the tongue was red at the tip and edges, and coated with a moist fur in the centre, with great thirst, and anorexia: the bowels were much relaxed; the urine scanty, and high coloured: he complained of pain in the head; and the pulse was 110, rather feeble, but sharp. He was ordered low diet, to have the head shaved, and to take mist. cretæ comp. occasionally, as required.

Until the 18th he had continued much the same: the bowels, however, were then more regular; and the tongue somewhat cleaner; the cough troublesome; and mucous ronchi abundantly heard: the skin was still very hot, with great thirst: he lay on his back, with a dull but anxious aspect; and was ordered 2 grs. of hydr.  $\bar{c}$  cretâ, 1 gr. of ipecac., and 4 grs. of ext. papaveris, every night; and took the chalk-mixture once or twice daily. He improved somewhat until the 21st, when his appetite was rather better, and his aspect less dull: pulse 100, softer, but feeble: but on the 22d the bowels were again more relaxed;

and he was ordered to take the chalk-mixture more frequently, and was allowed arrow-root and beef-tea.

On the 23d he was much more depressed: the tongue was very dry, though not much furred, and was retracted in the mouth, which was parched: the pulse was 120, small, more feeble: respiration was hurried, and more difficult; and he could expectorate but little, although mucous râles were extensive in the chest.

On the 24th he was worse: the tongue was very dry, swollen, and retracted; the pulse 120, and feebler; the respiration much oppressed, and wheezing; and the skin very hot and dry. He was seen by Mr. Stocker; who ordered him to take saline mixture, with acetate of ammonia, and 20 minims of ipecacuanha-wine, every four hours, and to have a blister applied over the sternum.

On the 25th he had less difficulty of respiration, but without expectoration: the tongue was moister, and he could protrude it: he was very low and drowsy, and the face was much suffused: articulation was performed with difficulty: the bowels were open. Equal parts of the acetate of ammonia-mixture and infusion of serpentary were given every four hours, and 5 grs. of the compound conium pill ordered every night and morning.

On the 27th he lay partially comatose, unable to articulate; and the mucus had accumulated in the bronchi and the trachea, giving a gurgling character to the respiration: the pulse was small, frequent, and fluttering, with wandering delirium, and jactitation of the arms; the face was much congested; and the tongue dry and retracted. Equal parts of infusion of serpentary and decoction of senega, with 5 grs. of sesquicarbonate of ammonia, were given every four hours, sinapisms were applied to the calves, and port-wine was ordered to be liberally administered, with arrow-root. In the afternoon the respiration became more difficult: he was quite insensible, and affected with spasmodic twitchings and convulsive heavings of the body; and died in the course of the evening.

No post-mortem inspection could be obtained.

#### CASE 23.

##### *Simple Fever, with Diarrhœa.*

SARAH LESTER, aged 39, single, a needle-woman, of middle stature and dark complexion, generally enjoying good health, with the exception of occasional bilious attacks, was admitted into Lydia Ward, under Dr. Babington, on January 26, 1843. She had for some weeks been depressed in spirits, from a family bereavement; and ten days before admission she was attacked with bilious sickness and vomiting, which was accompanied and followed by great pain in the

head, with lassitude, and aching of the limbs: she also had some diarrhoea, which, with hot skin and furred tongue, continued to the time of admission: she then complained of chilliness: her aspect was dull, heavy, and stupid: the skin was scarcely above the natural temperature, but very dry: the tongue was parched, injected, and with a dry, brown, fissured coating: she had great thirst, and no appetite: the bowels were relaxed, and the abdomen tender on pressure: the pulse was 100, very feeble: she had no pain in the head, or delirium, but was rather incoherent in her answers; and, at her admission, was evidently exhausted from the fatigue of being moved. The feet being cold, hot bottles were applied to them; and 10 grs. of aromatic confection was given every four hours in the ammonia julep; after which, re-action took place; and on the 27th the skin was hotter than natural, but moist; the tongue was moister at the edges, but still dry in the centre, and brown; the urine scanty; and the bowels very much relaxed, with great abdominal tenderness; the pulse was 95, weak, but jarring; and she was rather delirious in the night. Twenty leeches were applied to the abdomen; and she was ordered to take 10 gr. of sesquicarbonate of soda every six hours, in mint-water, with a scruple of aromatic confection.

On the 28th the abdominal pain and tenderness had subsided; but the bowels continued much relaxed: the tongue was moister and cleaner; the pulse was 90, weak, and still rather jarring; she had less thirst; and the skin was cooler. She was ordered to take a scruple of aromatic confection, in infusion of cusparia, three times a day; after which, the bowels became more regular, and were open once only daily.

On the 30th, the pulse was 64, fuller and softer; and the tongue cleaner and moister, the fur peeling off; her countenance improved; and she became more cheerful, and took beef-tea and arrow-root. She gradually became stronger, but continued rather weak; and on Feb. 6th, being quite convalescent, left the hospital.

#### CASE 24.

##### *Fever, with Diarrhoea.*

JOHN INKLIFFE, aged 14, a friendless orphan lad from Manchester; light and fair; gaining a precarious livelihood, and wandering from place to place: had been exposed to wet and cold, and suffering from scabies, for which he had a warm-bath in a London workhouse; and in a few days, after being again exposed to inclement weather, he was attacked with shivering, pain in the head and limbs, with great debility and thirst. He then went to another workhouse; and thence came to the hospital, whither he had managed to crawl, on a very



cold, damp day; and was admitted, under Dr. Babington, having been ill for four days. His countenance was then anxious and heavy, and his intellect dull and stupid: his surface was cold; and the capillaries of his face congested, yet pale: the tongue was coated and injected, moist: pulse very frequent, and feeble: pain in the head and limbs, the former aggravated by noise: bowels were confined, with thirst and anorexia. He was evidently much collapsed from cold; and was ordered to have the julep of ammonia every six hours, and low diet.

On the following day, re-action had taken place: the pulse was 120, fuller, sharp, but compressible: the skin was very hot and dry; and the bowels were still confined, and a few maculæ were seen on the abdomen. He took 3 gr. of hydr. c. cretâ, and 6 drachms of castor-oil, after which he had bilious evacuations; and 10 grs. of sesquicarbonate of soda, in mint-water, was given every six hours.

On the 17th, the pain in the head and heat of surface were diminished: pulse was 130, rather sharp, feeble: bowels relaxed several times: tongue still furred: with abdominal tenderness. Chalk-mixture was given three times a day; and on the 18th, the diarrhœa continuing, enema amyli, with 20 minims of tinctura opii, was administered, with only temporary relief.

On the 19th the maculæ were more abundant; the pulse was 120, very feeble, and thready; the tongue being somewhat cleaner; the respiration very hurried; and his general condition more depressed. Beef-tea and arrow-root were administered; and three minims of tinctura opii were added to each dose of the mistura cretæ.

The diarrhœa was checked; and from this period the patient improved. The pain in the head left him; he slept better; his aspect became less dull, and the tongue cleaner; the skin regained its natural temperature; and the pulse, on the 23d, was 84, fuller, but weak.

On the 24th the bowels were more relaxed, and the tongue rather more furred. He was ordered 10 gr. of aromatic confection, in mint-water, three times a day; and to have meat diet. He continued going on favourably, slowly regaining power, and becoming natural in his manner and intellect; and on the 29th was allowed half a pint of porter daily. His pulse improved; his tongue became clean; and he got about the ward by the 4th of February, when scabies again appeared on his arms and legs. He was ordered, being still very weak, infusion of serpentary, with half a drachm of the compound tincture of bark three times daily; and continuing to improve in strength, and his appetite being very good, he was allowed full diet; and sulphur ointment was applied to the eruption, on which

the iodide of potassium ointment had effected no benefit; and by the 16th of February was quite convalescent, and much stronger.

CASE 25.

*Mild Fever, with Diarrhœa.*

JOHN MIDDLETON, aged 24, a sailor, of heavy florid appearance, and strumous diathesis, of intemperate habits, and subject to headache, with epistaxis, was admitted into Naaman Ward, under Dr. Bright, on Dec. 7; having, five days previously, after exposure to wet and cold, been attacked with pains in the head, sense of weight in the limbs and loins, and general oppression, with muscular debility. These symptoms were followed, on the next day, by rigor and perspiration; since which, to the time of his admission, he has suffered from febrile symptoms; the bowels having been relieved by aperients; and a blister applied to the nape of the neck. At the time of his admission his face was flushed, but his countenance and manner were dull, stupid, and confused: there was heat and dryness of surface; occasional pain in the head, with slight vertigo; respiration was hurried, with a little cough; and occasional mucous râles were heard in the chest: pulse was 92, full, rather sharp, but compressible: the tongue was furred, and dry in the centre, moist, and rather red at the edges: he had thirst, with anorexia, and dryness of the throat and fauces: bowels frequently, but scantily evacuated; dejections dark and watery: urine high-coloured, in natural quantity. He varied his position in bed, and was ordered to take two grains of hydr.  $\bar{c}$  cretâ, and half a grain of pulv. ipecac. twice a day, and 15 grs. of sesquicarbonate of soda three times a day, in mint-water; to have the head shaved, and was allowed low diet.

On Dec. 10 the skin was moist, but the heat of surface great; the head was painful; bowels were much relaxed; the pulse 95, weaker. An evaporating lotion was applied to the head; and chalk-mixture was given in equal proportions with the mint and soda mixture.

The febrile symptoms were, for the most part, abated by the 12th; but the diarrhœa continued, and irritated the patient. The pulse was 98, weak and vibratory: the tongue was moister, and but slightly furred: the mist. cretæ comp., with aromatic confection, and six minims of vinum ipecacuanhæ, was ordered to be taken every six hours; and the hydr.  $\bar{c}$  cretâ and ipecac. to be continued.

The diarrhœa still continued troublesome, but was somewhat checked by the nocturnal exhibition of starch-injection at bed-time, which also procured comfortable nights' rests; and by Dec. 20 was considerably diminished, though still existing, with slight abdominal tenderness. He was ordered six drachms of inf. cuspariæ, and the same quantity of mist. cretæ comp., with six minims of vinum ipeca-

cuanhæ, three times a day; and ten grains of pulv. cret. comp., one gr. of hydr. c̄ cretâ, and half a grain of ipecac., to be taken night and morning.

His general symptoms improved, but the bowels continued relaxed; and on the 24th, the ipecac. and hydr. c̄ cretâ were omitted, and half a drachm of spirit. ammon. comp. was added to each dose of the mixture. The pulse were still very feeble, and frequent. After this date the diarrhœa ceased, the pulse became more firm and steady, and he felt somewhat stronger; and on Dec. 28, beef-tea and eggs were ordered for him. His appetite gradually returned, with slow increase of strength; and improving by degrees, he was quite convalescent, and left the hospital, on the 16th of January 1843.

#### CASE 26.

##### *Fever, with Diarrhœa.*

ALFRED SCAMMEL, aged 21, a single, thin, unhealthy-looking carpenter, with sandy hair and fair complexion, having enjoyed general good health, was admitted into Lazarus Ward, under Dr. Babington, on the 1st of February; having, a month previously, been attacked with chills, pains in the limbs, lassitude, and general depression, which was followed by diarrhœa, pyrexia, pain in the head, with delirium, and progressive emaciation; until his admission, when he was very much debilitated, and his aspect was heavy, but anxious; and his intellect dull: his skin was hot and dry; the tongue somewhat injected, with a brownish moist fur; his mouth and lips were dry and parched, with thirst and anorexia. He had no pain in the head, or delirium, but was exceedingly irritable, and often disturbed by unpleasant dreams, and cries out on being examined. The bowels were very much relaxed night and day; the dejections being fœculent, but very watery: the urine is of natural appearance, abundant: pulse 80, moderately full, but weak. He was ordered low diet, with beef-tea and arrow-root, and to take two grains of hydr. c̄ cretâ, with five of compound chalk-powder, three times a day, and five grains of ext. papaveris every night.

On the 3d, the bowels were still very much relaxed: the tongue was cleaner: the pulse was 70, more feeble, smaller: he complained of no pain, but great weakness. He was ordered to continue the powders, and to take the mint julep three times a day. The diarrhœa diminished, and he had but one or two daily evacuations on the 6th and 7th; but he complained of abdominal tenderness, with thirst, and coldness of the extremities; which, however, left him in a few days, and the bowels became regular, the countenance clear, and the skin of a natural temperature: the pulse continued small and

feeble; and he complained of chilliness at intervals, and was very nervous and irritable, but slept pretty well.

On the 12th, the mouth was rather dry; the tongue slightly furred; the pulse small, feeble, vibrating; the appetite was returning; and he complained of great debility.

On the 14th, the tongue was cleaner and moist, the bowels continuing regular, and the skin cool. Four ounces of wine were ordered daily; and he continued to improve, the appetite increasing, and he was gaining strength slowly.

On the 18th he got up, but was too weak to remain up more than an hour or two: the pulse was 70, feeble, but firmer: a mutton-chop was, at his own request, allowed him, and a powder given twice a day only; and from this period he continued convalescing: the appetite was very good, and he was allowed middle diet: the bowels continued regular; he gained strength; was less nervous; and by the 28th was quite convalescent, with a good appetite, though still weak.

#### CASE 27.

##### *Fever, with (probably) Bowel Complication.*

JOHN TROTMAN, aged 11, a pale, thin, cachectic-looking lad, residing in Bermondsey, with light hair and eyes and fair skin, and having been for some time in a delicate state of health, was attacked, about fourteen days ago, with chilliness and shivering, succeeded by febrile heat of surface, with pains in the head, back, and limbs. Aperients were given, as his bowels were confined, but without any relief; and getting worse, he was admitted into Lazarus Ward, under Dr. Addison, on November 24th. His face was then flushed, with a heavy, languid, dull expression of countenance; skin hot and dry; and he complained of great pain in the head: the urine was scanty; the bowels confined; respiration was hurried; the abdomen was full, and, as well as the epigastrium, tender on pressure: the pulse was 86, feeble: the tongue red at the tip and edges, furred in the centre, moist. Low diet was ordered, with arrow-root. The head was shaved, and an evaporating lotion applied; and 5 gra. of sesquicarbonate of soda were given every six hours, in mint-water.

On the 25th and 26th the bowels were not open: he had been very restless and delirious during the night; and his thirst was augmented: complained of pain in the head, and at the epigastrium; but was still very heavy and dull: the pulse was 90. Three gr. of hyd.  $\bar{c}$  cretâ, and three drachms of castor-oil, were prescribed, which evacuated his bowels, the dejections being dark and offensive, and the epigastric pain was relieved; and on the 28th, the pain in the head was better, but he still wandered a good deal: the skin

continued hot and dry, and he was very thirsty: the tongue was rather dry; the bowels continued regular.

On the 30th the bowels were open twice or three times daily, the evacuations being very thin, with small quantity of yellow fecal matter subsiding: one cheek was still flushed, and the other pale: there was no pain, but the abdomen was tender on pressure: the pulse was 86, very feeble. He was ordered beef-tea. The bowels were afterwards generally open once or twice daily, and the evacuations of the same character; but they gradually became more healthy and feculent. He slept better, without delirium, the skin became cooler, and the tongue moister and cleaner: his appetite gradually returned. He had an abundant supply of beef-tea, and an improvement in diet; and on Dec. 10th was ordered half an ounce of infusion of serpentary every six hours; and, becoming convalescent, but continuing very weak, and still of a heavy aspect, he left the hospital on the 15th, his pulse then being about 80, fuller, but weak.

#### CASE 28.

##### *Fever, with Bowel Complication—Sloughing of Integuments.*

JEMIMA SOLEY, aged 13, a delicate fair child, of strumous habit, living in Camberwell, where fever has not prevailed for some time, generally of delicate health, and always rather deaf, which was the sequela of a cold and sore throat. Her habits of life have been regular; and her mother states, that three weeks before admission, having for some days had pains in her hip and legs, she slept in a damp kitchen; after which she had chilliness, with pain in the head, followed by thirst, anorexia, flushed face, delirium, and great heat and dryness of the surface; and diarrhoea ensued, with great prostration, drowsiness, and intellectual dulness. These symptoms existed more or less, but with aggravation, to the period of her admission into Lydia Ward, on November 17th, under Dr. Bright; when her face was much flushed, and there was great heat and dryness of the skin: her general aspect was heavy and dull, and indicative of great prostration: she was much emaciated: the diarrhoea was diminished; but the bowels were still relaxed, the evacuations dark, offensive, and passed involuntarily: the tongue thickly coated with a white fur, and its tip and edges injected: the pulse 80, very feeble, and irritable: respiration hurried, with pain beneath the sternum, and slight dry cough. The catamenia appeared for the first time a week ago, and were attended with pain, and accompanied by clots of blood. There is a superficial sloughing sore over the sacrum, of the size of a crown. She was ordered low diet, with beef-tea and arrow-root; and took four grains of sesquicarbonate of ammonia, and half an ounce of

liquor ammon. acet. and of camphor mixture every four hours; and zinc ointment on lint, covered with soap plaster, was applied to the sore.

On the 18th, the tongue was rather cleaner; the skin cooler and moister: she had rested better: the fæces, though passed involuntarily, were of a healthier appearance: the pulse was 72, feeble, and occasionally intermitting: sibilant and sonorous râles were heard over the upper part of both lungs: the slough appeared disposed to separate. She gradually improved, gained more controul over her alvine evacuations, but passed her urine involuntarily: the pulse rose to 120, was regular, but very feeble, and soft: the bowels were regular, and the countenance more cheerful, but with a circumscribed flush readily excited on one or both cheeks; and on the 21st two ounces of port-wine were given daily. She continued improving, and gained complete controul over her urine and fæces, having occasionally passed them involuntarily, though consciously, during the last few days: she articulated with more power, and the pulse was rather firmer. She still maintained a supine helpless position, Was ordered an egg daily on the 24th.

On the 27th, the skin was cool; the face no longer flushed; the appetite very much improved; and the tongue nearly clean, and moist. The slough separated four days previously, and the wound was healing favourably: the pulse was 126, small, and very feeble. She was prescribed a grain of quinine, two minims of dilute sulphuric acid, and an ounce of decoction of bark, three times daily. The wine was increased to four ounces, and another egg allowed on December 1; and, as the bowels were rather confined, 4 gr. of hydr. c. cretâ and 2 drachms of castor-oil were administered. She gradually, but very slowly improved; the bowels were regulated as required by the castor-oil and hydr. c. cretâ; the pulse very slowly improved in power, and diminished in frequency; and having for some days been about the ward. and being convalescent and regaining her strength, she left the hospital on the 2d of January, her diet having been gradually improved.

CASE 29.

*Fever, with Ulceration and Perforation of the Bowel, and Peritonitis.*

JOHN DOBSON, aged 19, a piano-forte maker by trade, resident in Whitechapel, was admitted into Job Ward, under Dr. Babington, on February 1st; having, ten days before his admission, been attacked with vertigo, pain in the head and bowels, with muscular prostration, and aching of the limbs, which increased, especially the pain in the bowels, till his admission; when he was so dull, and his manner and answers so incoherent, that no satisfactory account of his symptoms could be obtained from him. His aspect was anxious and de-

pressed: he lay on his back, and complained of intense pain in the abdomen, which was increased on the slightest pressure: the bowels were open; the evacuations yellow, loose; the skin very hot, and dry, with thirst and anorexia; the tongue was injected, dry, coated with a brownish fur: he had a troublesome cough, and slight mucous expectoration, with hurried respiration: pulse was 130, small, feeble. Low diet was ordered. Twenty leeches were applied to the abdomen, followed by hot poppy fomentations; and 2 gr. of hydr. c. cretâ, and two of Dover's powder were ordered three times a day; and 10 gra. of sesquicarbonate of soda every six hours, in mint-water.

On the following day the abdomen was less tender and painful, but tympanitic: he complained of constant nausea, but no vomiting: he was still more depressed; the extremities cold; pulse 145, small and thready. He got no sleep; and his countenance was more anxious: bowels had not been open since admission. Ordered to have beef-tea and arrow-root, to take a pill every six hours, and three drachms of castor-oil, and three minims of tincture of opium directly. He gradually got lower and weaker, and in the evening wine was administered. He gradually, however, sunk into a greater state of collapse, and died early on the following morning.

*Morbid Appearances*, seventy-two hours after death.—The face was bloated and full: the peritoneum covering the intestines was very vascular, presenting an arborescent red appearance; and there was a thick layer of plastic lymph, of a butyraceous appearance, over the intestines, loosely gluing them to each other, as well as to the omentum, liver, and adjacent parts; and in the pelvis was a small quantity of fluid, resembling that usually found in the small intestines. On carefully separating the intestines, a small perforation was found in the ileum, the size of a small pea, about three inches above the cæcum, with white rounded edges. On opening the ileum, its lower three or four inches presented numerous patches of ulceration, not extending beyond the ileo-cæcal valve, which was completely covered with ulceration on its ileac surface: some of the ulcerations were solitary, some aggregate. They were deep, with thickened elevated edges, with surrounding vascularity, and one of them was found to be the seat of the perforation.

Some of the glandulæ Peyerî adjoining the ulcerations were only slightly prominent.

The peritoneum covering the liver was also inflamed, and there was effusion of lymph upon it, and loose adhesion to the diaphragm.

The pleuræ were the seat of old firm partial adhesions.

The posterior borders of the lungs were congested, as usual after death.

The membranes of the brain were rather congested.

OBSERVATIONS  
ON  
PNEUMONIA  
AND ITS CONSEQUENCES.

READ BEFORE THE PHYSICAL SOCIETY OF GUY'S HOSPITAL,

BY THOMAS ADDISON, M.D.

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My object in offering this communication to the Society is, to direct attention to a few points connected with the pathology, diagnosis, varieties, and effects of pneumonia. The general history and ordinary details appertaining to the disease are, I believe, sufficiently well known; and might be deemed misplaced, or might even appear impertinent, when addressed to a Society which numbers amongst its members those who have successfully directed much of their attention to the subject. The disorder, nevertheless, is one, in the study of which I have long felt a deep interest; and the result of my inquiries and investigations is a conviction that much still remains to be done for the satisfactory elucidation of those points to which I have alluded. However unsuccessful I may be in my attempt to add a trifle to the general stock, it is gratifying to hope, that by exciting discussion, and thereby concentrating the practical knowledge of the Society, much useful information may be elicited.

As I have already stated, I shall content myself with a very brief notice of those parts only of my subject which seem more particularly to require or admit of further elucidation; and, in compliance with such design, I shall first direct attention to what has been termed *simple pneumonia*, by inquiring whether that which has been so called be in reality the simplest form of the disease, and whether the general impression that it is so has not led to many serious and even fatal errors.

Every one knows that the symptoms said to characterize  
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*simple pneumonia* are, phlegmasial fever, with dyspnœa, pain or uneasiness in some part of the chest, cough, and peculiar expectoration. It is true that Laennec and others have dwelt upon the variableness in degree of each of these symptoms, and have carefully pointed out a certain class of cases in which they do not appear, and which on that account have been designated *latent pneumonia*;—cases occurring in the aged, the cachectic, in the intemperate, and towards the fatal termination of various diseases, characterized, in general, by much typhoid prostration, and thence occasionally called *typhoid pneumonia*. An impression has thus been created, and is still very generally prevalent, that whenever pneumonia occurs in good constitutions, and especially if the patient be young, the characteristic symptoms enumerated ought to be present. This impression is at variance with my own experience; and I am led to the conclusion, that the simple pneumonia of Laennec and others is not the simplest form of the complaint, but a complication—a broncho-pneumonia; and that a truly simple pneumonia is not very unfrequently met with in young persons, and in good constitutions, unattended by either cough, expectoration, or pain, or, at least, such a degree of either as to attract particular attention:—but more of this when we come to the diagnosis.

*Seat of Pneumonia.*—There are probably some present who remember the time and occasion when, in this Society, and in opposition to all existing authorities, I ventured to call in question the long-cherished notion that pneumonia had its seat in a supposed parenchyma of the lungs, and that the products of pneumonic inflammation were poured into that parenchyma. Since that time I have had the satisfaction of witnessing a gradual, but comparatively rapid, renunciation of the latter views, and the adoption of those advanced for discussion in this Society so many years ago; viz. that pneumonia has its original and essential seat in the air-cells of the lungs, and that the ordinary pneumonic deposits are poured into these cells. It is nevertheless true, that some of our most recent authorities are opposed to this opinion, and maintain that the pneumonic deposits are poured into an interstitial tissue; a conclusion which I find myself unable to reconcile with either the healthy or

the morbid anatomy of the lungs. I entirely fail to discover any structure to which the terms *interstitial* and *parenchyma* can be fairly applied. Accompanied by a corresponding branch of the pulmonary artery, I trace a filiform bronchial tube to a lobule or bunch of cells, in which it abruptly terminates; the blood distributed over these cells being received by the pulmonary veins, which pass exteriorly to the air-cells, in a loose and very distinct interlobular cellular tissue.

But, notwithstanding the most careful investigation, aided by injections into the tubes and cells, and by the use of magnifying glasses, I must confess myself unable to arrive at any positive conclusion, either as regards the elementary tissues which compose the air-cells of the lungs, or the exact construction and arrangement of the cells themselves. These are questions which, there is reason to hope, will ere long receive a satisfactory solution, from those who have already distinguished themselves as successful cultivators of microscopic anatomy. In the mean time, without venturing to decide whether the innumerable, minute, irregular, and manifestly elastic air-cells, constituting an individual lobule, partake more of the character of areolar tissue or of a serous membrane, I am fully persuaded that, *pathologically*, they present none of the attributes of a mucous membrane, as Reissessen and others would lead us to believe; and that, so far as the changes induced by inflammation and other diseased conditions are entitled to guide us, they must be ranked with one or other of the first-named tissues. Neither do these changes enable us to recognise any of that intercellular tissue which has been confidently asserted to be the seat of some of the most important diseases of the lungs, and into which, accordingly, the morbid deposits resulting from inflammation and dropsy have been supposed to be effused. So far as my observation has extended, I should have as little hope of finding this interstitial material in a pulmonary lobule as in a mere bundle of common areolar or cellular tissue.

*Effects of Pneumonia.*—I may venture to affirm, that no one who carefully traces the effects, either immediate or remote, of pneumonic inflammation can fail to be struck with their close resemblance to those of inflammation affecting a serous

membrane or the common uniting cellular tissue of the body; and if the pathological changes induced in any tissue constitute a legitimate foundation for an opinion respecting the physiological character of that tissue, one is almost irresistibly led to the conclusion that the air-cells of the lungs are a mere modification of one or other of these tissues. But to proceed.

It is a plausible conclusion of one of our ablest writers on pneumonic inflammation, that in the earliest stage of that morbid condition there is a preternatural dryness of the air-cells, from an arrest of their natural secretions; and that this stage is characterized by an excited state of the respiratory act, and by a murmur louder than natural. To this belief I am inclined to subscribe; having recently met with a case in this hospital, which, from the presence of a premonitory symptom, to be mentioned more particularly by-and-bye, I anticipated would proceed to pneumonia;—in which pneumonia actually took place—and in which this excited state of the respiration, and a loud but rough respiratory murmur in the lung about to be affected, were strongly marked. Further observation is, nevertheless, certainly still required fully and satisfactorily to establish this—Dr. Stokes's position: and since the onset of inflammation as positively checks the secretion of a mucous as it is affirmed to do that of a serous membrane, the position, even if correct, bears but little upon the question regarding the mucous or serous character of the air-cells. It is the effect which immediately succeeds to this, and which is that usually first recognised by physical signs, being the stage of engorgement of authors, that seems most strongly to countenance the belief in the serous character of the pulmonary air-cells. This effect consists in an effusion of serum into the cavities of the cells themselves; an effect certainly at variance with the opinion of Reissessen and others, that the air-cells are merely the blind extremities of as many bronchial tubes, and that, like the latter, they are lined by an ordinary mucous membrane. It is some years ago since I first collected this fluid, and, on testing it by heat, found it to be highly coagulable. It is true that there are those who entertain a different opinion, and contend that the effusion, though serous, is not poured into the

cells, but into an interstitial tissue. This interstitial tissue I have never been able to discover; whereas any one, with a very little care, may satisfy himself that the serous fluid is poured into the cells themselves: he may do this by forcing, by gentle pressure, the fluid from the cells through the truncated bronchial tubes of the incised lung, and subjecting it to examination. But as a proof of its not being in the cells, we are told that, at this stage of pneumonia, expectoration is often absent, or, if present, does not consist of serum; which it is supposed ought to be the case, if it were contained in the cells. It remains to be proved, however, that simple serum, which must necessarily gravitate, can be expectorated at all under ordinary circumstances; inasmuch as, in order to accomplish expectoration, the matter to be expectorated must admit behind it a sufficient quantity of air to force it into and up the tubes: and we know, that in the very worst forms of œdema of the lungs, there is often very little cough, and seldom any expectoration at all, or, if any, not necessarily of a serous character. It is, indeed, contended that the serous effusion in œdema of the lungs is not poured into the cells, but into the supposed interstitial tissue. The disproof of this, however, is just as easy and as obvious as that of the interstitial deposition of serum in pneumonia; as I have over and over again satisfied myself: and I may add, that Mr. Hilton and myself collected the fluid from the truncated bronchi with great care and with the least possible violence, and found it to be purely serum. In order, also, to prove that it was not lodged in the interlobular tissue, we separated an individual lobule, and found that, by puncturing it, a fluid purely serous was readily collected. Thus, then, as in other serous structures, we find that one of the earliest effects of inflammation of the pulmonary cells is an effusion of serum into them; and that when there is dropsy of other serous structures, œdema or dropsy also takes place in them; illustrations of which are perpetually met with in Bright's disease.

In this stage of pneumonia, together with a highly red and vascular condition of the cells, we find the cells already more substantial and dense to the feel than natural, although still crepitating, and containing air. Sooner or later, however,

the turgid parietes of the cells obey the ordinary laws of an inflamed part: they lose their natural cohesion, swell, and, encroaching on the cavities of the cells, cause the absorption of the serum previously effused; and, by thus occupying or filling up these cavities, occasion, first a dryness and brittleness, and afterwards the complete consolidation which constitutes the red hepatization of authors—a consolidation, nevertheless, accompanied, as might be expected, by such loss of cohesion as causes the lung readily to break down under pressure. From the examinations I have made of lungs in this state, I am disposed to agree with those who reject the notion of the consolidation being dependent in any degree upon actual effusion of solid albuminous matter into the cells: it seems to result entirely from the great vascularity, softening, and tumefaction of the parietes of the cells themselves; and hence probably the rapidity with which this often takes place in typhoid or cachectic pneumonia, in consequence of that loss of tone which uniformly causes the various tissues speedily to soften, under the disorganizing influence of inflammation. Accordingly, if we attentively examine a lung in this condition with a moderately magnifying power, we find the granular appearance so much dwelt upon by writers, but without any evidence of actual deposit in the cells.

In order more clearly to comprehend the subsequent changes which take place in an inflamed lung, it is necessary to bear in mind the disorganizing tendency which uniformly accompanies the morbid process of acute inflammation, wherever situated. The changes produced by this morbid process we know to consist not only in a loss of cohesion and more or less tumefaction of the inflamed tissue, but in a remarkable disposition in that tissue to return to a state more or less resembling that which forms the original basis of all tissues; viz. an albuminous material. This re-conversion of a tissue into albumen I would express by the term *albuminization*. The healthy organizing process converts albumen into the various natural tissues; whereas the disorganizing process of inflammation tends to destroy this organization, and to cause the tissues to return to an albuminous state. We accordingly find, that, as acute inflammation proceeds, the parietes of the cells become more and

more opaque—how far from a merely molecular change, and how far from superadded albuminous deposit, it is difficult to determine; the minute blood-vessels are no longer visible; the parietes of the cells are not only thickened, but become exceedingly softened; and, with this extreme loss of cohesion, and apparently diminished vascular turgescence, we have undeniable proof that the cells now admit of an albuminous matter being poured into their cavities. This constitutes the grey hepatization of authors.

When the inflammation occurs in good constitutions, this albuminous matter may be more or less solid, so as not to allow of its being pressed out; although, by careful washing, it may sometimes be partially removed, so as to restore imperfectly the cellular appearance of the lung: but should the inflammation occur in a bad constitution, or take on an atonic form, the albuminous effusion is more fluid, presenting a more or less yellow or even dirty muddy purulent appearance, and may be readily forced out by gently pressing or by pricking the cells which contain it. That this puriform fluid is really contained in the cells themselves, and not in any interstitial tissue, may be further shewn by making an incision into the lung, scraping off the matter from the divided surface, and then applying pressure; when the matter will be seen to issue from separate openings more or less apart from each other, and which are manifestly small bronchial tubes. These changes may, in any state of constitution, take place in a considerable extent of pulmonary tissue, rendering the whole of an opaque white or grey colour, and obliterating, or rather concealing, the lines of common cellular membrane which naturally separate one lobule from another, and which were, during the period of red hepatization, distinctly visible. In other cases, however, and especially in certain atonic forms of acute pneumonia, these changes are confined to individual lobules more or less remote from each other, the common cellular membrane appearing to form a distinct line or boundary to the inflammation; thus illustrating one of the purposes answered by the lung being divided and subdivided into lobes and lobules, that of preventing, to a certain degree, the extension of disease commencing in one lobule to that immediately adjacent.

It has long been a matter of remark, that acute pneumonia rarely terminates in the formation of abscess; and it certainly is not a little remarkable, that, notwithstanding the great loss of cohesion of the tissues—so great that the slightest violence after death causes them to break down into a semi-fluid amorphous mass—a real abscess should be so very rarely met with. In good constitutions, even under the most intense inflammation, such an occurrence is universally acknowledged to be extremely rare; whilst in the more atonic inflammations affecting bad constitutions, although abscesses are by no means so very unfrequent, they are for the most part exceedingly small, and irregularly scattered through the inflamed part. (See Plate I.) In some cases, such is the want of vital power, that acute inflammation rapidly disorganises the tissue, and either reduces it speedily to a puriform albuminous mass, or entirely robs it of its vital properties, so that it dies or sloughs before the softening and liquefaction are so complete as we find in abscess: in these cases of sloughy abscess, the sloughing part sometimes presents a dark dingy aspect, exudes a turbid serous or sanious fluid, and even manifests an offensive or putrid odour. Gangrene, properly so called, is acknowledged to be still more rare; although, when gangrene of the lung does occur in its diffuse form, I believe it to be closely allied to the sloughing process just alluded to, and to result from a certain degree of inflammation occurring in bad constitutions: all the cases that I have witnessed having been in persons who had either been guilty of great intemperance, or had otherwise brought their systems into an extremely cachectic or atonic state.

I have, in these remarks, specified diffused gangrene in particular; because another form of gangrene of the lung is spoken of, of a more chronic kind, generally surrounded by condensed lung, and to which the name *circumscribed* gangrene has been applied. Most, if not all, cases of the latter kind, however, I am disposed to suspect, have quite a different origin from the former, and are the result of previous pulmonary apoplexy; an illustration of which will be found in the accompanying Drawings, taken from subjects examined at this hospital. (Plate II. fig. 1 and 2.) Blood is poured into the aërial cellular tissue: this for a certain time

remains in the form of a circumscribed solid red body, imbedded in the lung: it afterwards assumes the appearance of a mass of solid albuminous matter, the red particles or coloured matter having been removed. This albuminous mass may remain permanently, and be accidentally discovered when the individual has been cut off by some other disease. It would appear, however, from cases such as these from which the Drawings were taken, that these masses occasionally destroy the circulation of the air-cells in which they are imbedded, act as foreign bodies, excite inflammation, and cause albuminous matter to be poured out around them, by which they become more or less isolated from the surrounding tissues, and consequently die; or, becoming putrid from their communication with a bronchial tube, give rise to all the ordinary characteristic symptoms of gangrene of the lung. It is in such cases that a portion of separated and dead lung is occasionally found as a loose nodule in the gangrenous cavity. (See Preparations and Drawings, Plate II. fig. 2.)

I have said that the changes produced by acute pneumonia may be limited to separate lobules, more or less remote from each other. This *lobular pneumonia*, as it has been called, although it may occur in good constitutions—as, for example, in pneumonic complications of whooping-cough—is, for the most part, observed in bad and cachectic habits of body, and especially towards the termination of various chronic diseases, after surgical operations, and in phlebitis. It is in such cases that the vital properties of the tissue inflamed are rapidly exhausted, so that remarkable softening or small sloughy abscesses speedily result; so rapidly, indeed, that, in the case of phlebitis, it has been somewhat unphilosophically, and certainly very incomprehensibly asserted, that the matter formed in the vein is mechanically conveyed to and deposited in the lung. The abscess in such cases is, indeed, sometimes of considerable size—perhaps that of a large hazelnut,—very complete, and very rapidly formed: but that this merely results from the circumstances just pointed out, is, I think, sufficiently attested by the fact, that in some instances we can distinctly trace, in different lobules, the progressive changes which usually precede a perfect abscess; namely,



redness, dryness, condensation, friability, albuminous opacity, and lastly the softening down into a complete abscess. (Plate I.)

There is another form of consolidation of the lung, which has been much dwelt upon by writers on this subject. It was first, I believe, particularly noticed by Laennec, who described it under the name of *carnification* of the lung, and was regarded by him as the result of pneumonic inflammation, modified by pleuritic effusion. Externally, the lung presents a blueish tint, not unlike that of the spleen: it feels soft and flabby; and, when cut into, displays no granular, but rather a uniform texture, of a dark or brownish hue, pretty closely resembling raw flesh which has become dark-coloured from long keeping: it is totally destitute of air, does not crepitate, and instantly sinks in water. This, I repeat, has been considered as a consolidation resulting from pneumonia modified by pleuritic effusion; and has even been made the grounds of an argument, that pneumonic deposits do not take place into the air-cells; the deposit in the present case being, or supposed to be, seated in the interstitial tissue. I will confess that I never could understand these views, which are altogether at variance with what I understand by inflammation. I never could reconcile it to myself, that an inflamed tissue could retain its normal, much less have an increased, tenacity; for the lung in this state is remarkably tough; whereas loss of cohesion is one of the most constant and inevitable consequences of inflammation in any tissue. I never could entertain a doubt that the whole of the appearances of such a lung as has been described, resulted from pleuritic effusion having compressed the lung, forced out the air, and thus brought the sides of the cells into close contact. Accordingly, I recently took a portion of lung in this state, and, having ascertained that it instantly sank in water, requested my friend Mr. Hilton to try to inflate it: he did so; and the result may be seen in the dried lung which I now present for inspection. In short, the lung is perfectly inflated; and the aërial cellular tissue is in its normal condition, with the exception of a slight redness, indicative of an unusual quantity of blood. That this may occasionally be blended with pneumonic inflammation and its consequences,

I do not deny, though I do not know it; but I am strongly inclined to believe that the whole matter is one of those mistakes which, once made, continue to be handed down without correction, in consequence of a neglect to put it to the test of careful experiment.

I have met with instances of hepatization of the lung, more or less complete, presenting a uniform rather than a granular aspect when cut or torn: but these were altogether independent of pleuritic effusion. I have seen such cases after whooping-cough, and in hypertrophy of the heart. How much has mere hypertrophy of the aërial cellular tissue to do with such consolidation?

There is a peculiar state of lung frequently met with after death, the nature and origin of which are still involved in considerable obscurity. The condition alluded to is met with in the posterior or most depending part of the lower lobes of the lungs; and the first difficulty is, to determine whether it existed before death, or is merely cadaveric, resulting from the position of the dead body. In most instances of this kind, the lung, externally, is of a dark colour; and, when cut into, presents an almost uniform soft, flabby, very humid, and readily-lacerable texture, in colour verging from that of red to that of black-currant jelly. If this take place after death, why is it found in one case and not in another? If it take place in any instance before death, what are the pathological conditions which determine the occurrence of this congestive softening, as it might then be called? Why I mention it in this place, is, because we very frequently find it mixed up with a certain degree of actual inflammation of the air-cells, as indicated by a marked difference of colour, and by the dryness and brittleness of the inflamed tissue; and now and then by an actual albuminous deposit, or purulent infiltration in certain points. In such cases, did the congestion precede or give rise to the pneumonia; or was the apparent congestion purely cadaveric? In some instances, at least, the signs and symptoms enable us to predict one or both of the morbid appearances just described.

The *remote* consequences of pneumonia are scarcely less varied, and are certainly not less interesting than the

immediate effects just described. The ordinary progressive changes which take place in a lung recovering from an attack of acute pneumonia are too familiar to require description; neither will I enter into any speculation as to that precise degree of pneumonic inflammation which does, and that which does not admit of perfect resolution—such resolution as shall restore permeability to the cells previously inflamed, without taking into the account any slight opacity or thickening insufficient to prevent their inflation.

The *permanent* effects produced in a lung by pneumonia depend, I believe, chiefly upon the state of the patient's constitution, and the character of the inflammation, and consequently upon the nature of the albuminous deposits, and the degree of organization of which that albuminous deposit is susceptible\*. Of these permanent effects I have been led to distinguish three varieties: 1. *The uniform albuminous induration.* 2. *The granular induration.* 3. *The grey induration.*

When acute pneumonia occurs in good constitutions, the softened tissues appear occasionally to become so blended with or assimilated to the permanent albuminous deposit, that the whole is converted ultimately into a uniform homogeneous, semi-transparent, or opaque and yellowish material, in which we discover not the slightest trace of either the aërial cellular structure, or of the common interlobular cellular membrane. Passing through this organized mass, we sometimes find vessels of considerable size carrying red blood, which, on making pressure, may be forced out of their truncated extremities; but as regards any proper vascularity of the new tissue itself, I am not at present in a position to speak with confidence. The material just described may either be diffused through a considerable portion of lung involving several lobules, or even the greater part of an entire lobe, which is sometimes the case; or, as more rarely happens, it may be limited to one, or a very few lobules only. This, the least frequent of the permanent pneumonic indurations of the

\* Whenever the albuminous products of inflammation become consolidated and contracted, and remain permanently, I, perhaps with little propriety, use the terms "organized" and "organization." The state of the blood-vessels in and around these products may probably form a subject of the future communication.

lung, I would distinguish by the term, *uniform albuminous induration*. (See Plate III.)

When, on the other hand, the inflammation pours out a less organizable albumen, as often happens in strumous habits, the permanent change produced is very different. In such cases, the interlobular cellular tissue often, though not necessarily, remains perfectly distinct; and a solid, pale, or yellowish and friable albuminous matter occupies the lobules; and this, apparently, without having assimilated the parietes of the cells, as in the former case. The cellular arrangement is still perceptible, both on the exterior and in the interior of the lobule, giving to the former something of the configuration of a raspberry (Plate IV. fig. 2 and 3.); whilst, on cutting the lobule, we find the friable albuminous matter presenting the granular aspect produced by the filling up of still-separate cells. Whether this change take place in a single lobule, in lobules at a distance from each other, or in a number of lobules as it were heaped together, so little affected is the interlobular cellular membrane in many instances, that, after keeping the lung a few days to soften it, these lobules may be fairly turned out and examined; as was the case with the lobules from which the accompanying drawing was taken (Plate IV. fig. 1, 2, and 3.) This constitutes, then, what I would call the *granular induration*, resulting from a deposit the very character of which seems to indicate a less vigorous constitution, being less capable of organization, and resembling, in its appearance, ordinary tuberculous matter; from which latter circumstance it is sometimes called *inflammatory tubercle*.

The *grey induration* is made up of a mixture of dull or yellowish-white and black matter, in variable proportions; the tint being light or dark according to the greater or less quantity of one or the other of these: the lighter variety occasionally passing insensibly into the uniform albuminous induration (See Plate III.); the darker, on the other hand, being of an iron-grey colour, or approaching, in some instances, nearly to black (Plates V. and VI.): the former again being, in general, of moderate density; the latter usually much firmer, and sometimes even as hard as cartilage. In this grey variety of pneumonic induration, the morbid

change differs from the uniform albuminous induration, in the albuminization of the tissues being much less complete; and from the granular induration, in the albuminous deposit being of a more plastic or organizable kind: in short, the pneumonic inflammation may be said, in this case, to have terminated in adhesion; the albuminous effusion having partially undergone organization and contraction, and thereby glueing together and hardening the aërial cellular tissue; the whole of the appearances being, consequently, the result of permanent albuminous deposit, obstructed cells, and black pulmonary matter. I believe the interlobular cellular membrane undergoes a similar change in such cases. That this morbid change may have accompanied a pneumonia in which the reparatory process was slow, or that it may have been produced by repeated attacks or accessions of acute pneumonia, I am not inclined to dispute; but I must confess myself unable to understand the proposition, when it is asserted that this grey or black induration of the lung results from chronic pneumonia. In the wet preparation on the table, taken from a woman who lately died in this hospital, of renal dropsy, and in whom I could detect no trace of ordinary tubercle, it will be seen, that whilst a portion of the pulmonary tissue has nearly taken on the form of the uniform albuminous induration, this character gradually changes, as we proceed, from the most inflamed part; the lung merely feels harder, is imperfectly inflatable, is of a darker colour, and is gradually lost in healthy cells.

As the morbid changes described have been somewhat indiscriminately considered as forms of tubercular infiltration, it may be fairly asked—What proof have we of their inflammatory origin? It is impossible, in a necessarily limited communication like the present, to state all the circumstances, which, after several years of careful inquiry, have left no doubt in my own mind. Nevertheless, in reply to such a question, I may observe, in the first place, that we occasionally have direct proofs of a previous attack of acute inflammation within the chest. 2dly, They are pretty uniformly accompanied by the clearest evidences of former inflammation; viz. old deposit on the pleura immediately above the affected portion of lung; adhesions between the

pleuræ in that situation; considerable puckering of the pleura, with accompanying contraction and diminution of size of the lung itself, sufficient, in some instances, to cause actual deformity of the thoracic cavity. 3dly, They are perhaps more frequently than otherwise found in the middle and inferior lobes of the lung, and not in the apices, the usual and earliest seat of tubercle: and, lastly, The total absence, in many instances, of a vestige of tubercle in other parts of the lung. (See Plates III. IV. fig. 1. V. and VI.)

I cannot quit this part of my subject without adverting to the very interesting and much-agitated question regarding the relation which exists between pneumonic deposits and tubercle;—the question, whether tubercle be uniformly and necessarily the result of a process of inflammation; or if not, whether it is so in any, and in what instances. Without pretending to remove, in any considerable degree, the difficulties and obscurity which at present beset the subject, I think it desirable to place before the Society a plain statement of the facts which I have observed, the analogies which have suggested themselves, and the conclusions to which I have been led by my investigations and experiments on the matter.

Like many others, I have not failed to be exceedingly struck with the general resemblance—a resemblance almost amounting to identity—observed to exist between the effects of tubercular disease occurring in serous membranes, and those met with in the lungs; the several forms, changes, and varieties presented by the one being almost equally observable in the other. The earliest and simplest form of tubercular disease in a serous membrane consists of a minute, roundish or oval, grey semi-transparent projection, usually hard to the touch, and possessed of considerable tenacity, so as to be broken down or disintegrated with some difficulty; being in a few instances, however, less dense, and more easily broken down by pressure. These small bodies appear to have their seat chiefly in the deeper and looser tissue of the serous membrane; sometimes, however, occupying its denser structure, being apparently inseparable from it and identical with it, so that an incision presents a surface in which we can distinguish no line of demarcation whatever;

and, still more rarely, it would appear to be but loosely attached to the surface of the membrane, and can be separated without much violence. In like manner, the earliest and simplest form presented by tubercles in the lungs is that of minute grey semi-transparent and generally hard bodies, inseparably attached to, and apparently incorporated with, the parietes of the air-cells of the lungs, in the same manner as the small tubercles are incorporated with the peritoneum. I have carefully examined these tubercles, by means of a considerable magnifying power; and am satisfied that they are not by any means distinct separate deposits, but have in reality precisely the same relation to the membrane of the air-cells as tubercles have to the cellular tissue which results from inflammation when developed in it, and as tubercles have to the membranes of the peritoneum and pleura. The best mode of shewing these appearances, is to inject the bronchial tubes and cells of a tuberculated lung with tallow coloured with vermilion; when not only the interlobular cellular membrane will be rendered apparent, by remaining pale, but the portion of aërial cellular tissue occupied by the minute tubercles will be distinctly seen, and may be examined by means of a microscope with the aid of a reflector; the rest of the injected lobe presenting a very good example of what is called red hepatization. Should a cluster of such tubercles exist in a single lobule, and in close contact, then we have, as might be expected, a grey semi-transparent and somewhat granular state presenting itself. Neither in the case of the peritoneum, nor in that of the lung, do we at this stage discover the slightest trace of inflammatory action;—no opacity or false membrane in the former; no puckering nor condensation of adjacent cells in the latter.

We nevertheless know, from abundant facts, that the peritoneum, when once tuberculated, is extremely liable to inflame; the ordinary effects of which are, opacity, thickening, and contraction of the membrane, as shewn by its dull grey or whitish colour, by the diminished calibre and dense fleshy feel of the intestinal tube, by the shortening of the mesentery, and by the disfigurement of the parenchymatous viscera. These effects manifestly arise from an effusion of coagulable lymph or organizable albumen; this giving a thin coating to

the serous membrane, and, by its contraction during organization, occasioning the contraction. I find in the lungs a state scarcely distinguishable from this. In certain lobules, or in a single lobule, we find a cluster of tubercles, the whole presenting now a more dull or opaque appearance: not only do they become dull and opaque, but this change is followed by a decided attempt at contraction or puckering of the affected lobule, as I believe, from a cause similar to that in the peritoneum. If we examine several of these clusters of grey tubercles in different parts of a lung, we are led to the conclusion, that they begin in a point or cell, and gradually extend to the rest of the cells, either of that, or of that and adjacent lobules; and that contraction first commences in the centre of the cluster or collection: so that whilst the centre has become remarkably dense, and the tubercles, as it were, squeezed up together, the density gradually diminishes, and the tubercular changes become more and more distinct, until at the very circumference we find what are called tubercles occupying a portion of pulmonary tissue still more or less healthy and crepitating. It is not a little singular, too, that as a general rule, in proportion to the degree of contraction and density of these simple tubercles, or rather, perhaps, of the film of inflammatory effusion poured out around them, is the quantity of black matter found in the diseased tissue; so that on cutting through a portion of lung so affected, the gradually diminishing density of the deposit on the one hand, and the gradually fading black discolouration on the other, give to the cut surface a peculiar radiating or stellated appearance. It is also worthy of remark, that in the tubercular state of the peritoneum, a collection of such black matter is by no means uncommonly met with, in small quantity, adherent both to the tubercles themselves and to the false membrane which so usually accompanies them. Admitting my description of the morbid changes to be correct, an objection may be taken to the order of succession which I have adopted. It may be said, that inflammatory albuminous deposit takes place first, and that tubercles are subsequently formed in it, as manifestly often happens in false membranes both of the peritoneum and pleura. I have very little doubt that this does happen occasionally

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in the lungs, as well as on the serous membranes alluded to, although it is perhaps more difficult of proof: nevertheless the reasons already given, satisfy me, that in general the tubercular development is primary, the inflammatory effusion and contraction secondary. On examining advanced cases of tuberculated peritoneum, I have found tuberculated parts becoming opaque, yellowish, soft, and almost like cheese: in the lungs I have found precisely similar appearances. The softening and disorganizing process, however, so commonly met with in the lungs, is less manifest in the peritoneum: the difference of the position of the two structures, and the very different degree of excitement and irritation to which they are respectively exposed, will go far to account for this; whilst it must be acknowledged that we are very far indeed from being without examples of even this change. In aggravated cases of strumous peritonitis, and especially when the intestines have been all matted together, with considerable inflammatory deposits between their folds, we not unfrequently find false membranes with every shade of tubercular change, from the semi-transparent development, through all the various degrees of opacity and softening, to a yellow puriform matter, with ulceration into the intestinal tube, and consequent faecal abscess. Again, when acute inflammation has supervened upon a tuberculated peritoneum, I have found, after death, a moderately healthy-looking plastic lymph thrown out upon the false membranes and other parts, a great portion of which manifested a strong tendency to take on a sort of tubercular form, or rather to arrange itself in separate rounded or oval masses, very closely resembling the opaque yellow soft masses occasionally met with in tuberculated lungs after a casual attack of inflammation.

As the subject of tubercle is not intended to form any necessary part of the present communication, I have merely alluded to it incidentally, in order to trace the close analogy existing between the pathological changes in serous membranes, and those of the aërial cellular tissue of the lungs; but I may nevertheless be permitted to observe, in reference to this most interesting and important question, that I fail to discover what I had always been taught to consider as essen-

tially tubercle—a distinct, separate, or rather separable body, of a particular colour and consistence, imbedded in, and, although adhering to, supplanting a portion of the ordinary tissue of the lung. On the contrary, unless the simple transparent tubercle already alluded to can be considered as a separate and distinct body, there is not one of the varied morbid conditions, coming under the denomination of tubercle, which has not appeared to me to result from changes in or on the natural tissues, rather than from any separate and well-defined deposit displacing these tissues. These morbid changes have appeared to me to be perfectly identical with those of inflammation.

Without taking-into account a highly-injected state of the vessels of the part, or that arrest of secretion said to attend the onset of inflammation in every structure, the ordinary morbid changes immediately produced by pneumonia are, 1. An effusion into the air-cells of serum more or less highly charged with albumen in solution; 2. A molecular change in the inflamed tissue, characterized by more or less opacity and loss of cohesion; 3. A deposition of albumen into the cells, either solid and organizable, or fluid and puriform; 4. Total albuminization of the tissues, either in the form of a material susceptible of organization, or of a material unsusceptible of organization, and thence forming an abscess. On the other hand, the salutary or reparatory changes are, 1. Absorption of the effused serum; 2. Such a change in the molecular condition of the tissue as restores to it its natural cohesion, and, to a certain extent, its transparency; 3. Organization of the effused albuminous matter, with consequent contraction and induration of the tissues into which it is effused, or absorption of the albuminous effusion if puriform; 4. Organization of the albuminized tissue, when susceptible of that change; or the formation of a cyst to circumscribe the abscess, when the conversion is of the puriform kind. The immediate morbid changes produced by ordinary pneumonia and by phthisical disease are the same, with the exception of the albumen, whether effused, or resulting from albuminization of the tissues, being much more susceptible of organization, and consequently more likely to become permanent in the former than in the latter:

whereas the reparatory or salutary changes are much less complete and much less permanent in phthisical disease than in ordinary pneumonia. Accordingly, as far as my observation has extended, the uniform albuminous induration can scarcely ever be said to have occurred in strongly-marked phthisical disease; whilst the granular induration may be said to form a connecting link between phthisical disease and ordinary pneumonia. The grey induration in phthisical subjects being chiefly made up of the less organizable or granular deposit and black pulmonary matter, is much less firm, much less permanent, and generally soon softens down into a vomica or abscess: in short, as we speak of scrofulous peritonitis, so, if called upon to give an expressive name to tubercular phthisis, I should venture to designate the disease scrofulous pneumonia. In both diseases, all the inflammatory changes may take place without either local or general symptoms sufficient to attract particular attention; in both, the general and local symptoms may be moderate, with occasional aggravations; and in both, the general and local symptoms may be those of the most acute inflammation. This scrofulous pneumonia, like scrofulous peritonitis, may or may not be preceded or accompanied by the passive or simple transparent tubercle.

Some stress, indeed, has been laid upon the scattered and detached form of tubercular disease, as contrasted with the more continuous and extended character of pneumonic change. I, however, believe that pneumonia itself, like tubercular change, always commences at a point in separate lobules, the continuity and extent of the changes usually found after death from that disease resulting from the rapid manner in which ordinary acute inflammation spreads: for in many cases of recent acute pneumonia we can distinctly recognise the separate points or centres; whilst, in not a few, these several centres never coalesce at all, but remain permanently distinct, and constitute what has been called lobular pneumonia. In like manner, scrofulous pneumonia, or inflammatory tubercle, whether it commence around small transparent granulations, or whether it take place in the absence of these bodies, also commences in separate lobules, which either remain permanently separated, or, a large number of neighbouring lobules

becoming affected at the same time, or in succession, produce a more or less continuous and extensive change, precisely analogous to, if not perfectly identical with, the effects of acknowledged pneumonia. In both the detached and continuous forms of tubercular disease just named, the hardness, the contraction or puckering, and the concentration of black pulmonary matter, sufficiently attest the attempt at reparation; although, as we know to our cost, the reparatory effort rarely proves either complete or permanent, but sooner or later gives way to softening, disorganization, and phthisical destruction of life.

It has also been made a plausible objection to the inflammatory origin of tubercular disease, that it most frequently takes place in the apices and upper portions of the lungs, whereas the reverse holds true in regard to ordinary pneumonia. Without dwelling upon the many exceptions to this rule, and without attempting to account for the greater frequency of ordinary pneumonia in the lower portions of the organs, on the score of these portions being the most dependent, and consequently most favourable to congestion, I may, without disputing their accuracy, remark, as a set-off against these statements, that it is quite in keeping with my own experience, in examining the lungs of individuals who have died of disease not affecting the chest at all, to find indications of partial inflammation much more frequently towards the apices than in the lower portions of the lungs. Partial pleuritic adhesion and pneumonic changes, according to my experience, are more frequently met with in the former than in the latter situation. If this observation be correct, will it not go some way to account for the earlier development of tubercular disease in the apices, as a general rule?

We know that the several permanent morbid structures or deposits alluded to in this Paper, whether of a tubercular or pneumonic origin, maintain what may be called their integrity by a very slender power: that degree of vital influence which holds their molecules in a solid state is so inconsiderable, that it is liable to be impaired or destroyed by very slight disturbing or devitalizing causes. The most common and most powerful of these are, unquestionably, inflammation set up in the surrounding parts, and a cachectic habit of

body\*, but more especially these two causes occurring in the same individual. We accordingly find, that, under such circumstances, these structures and deposits soften down, and are gradually converted into an albuminous or puriform fluid, and thus give rise to symptoms of phthisis. It is only with the softening of pneumonic deposits that we have to do; although, for reasons stated, it is almost impossible entirely to lose sight of the changes which take place in tubercular deposits, and especially so, as the latter are often associated with what I have designated the granular pneumonic induration.

In the case of *uniform* induration, the appearances in the lung produced by its softening necessarily vary with its seat, its extent, its being accumulated in a single well-defined mass, or distributed more or less extensively in more situations than one, and according to the completeness or incompleteness of the softening process, or the entire or partial discharge of the softened matter by the bronchial tubes. We occasionally find one large round or oval cavity, generally, but not necessarily, lined, or rather bounded, by an opaque and sometimes moderately thick membrane, probably containing little more than a very small quantity of muco-puriform fluid; not a vestige of either pneumonic or tubercular deposit being discovered in any other part of the lungs, which shall appear to be perfectly healthy. (See Plate III.) In other instances we find a multilocular cavity, or several adjacent cavities, presenting nearly the same characters, but frequently communicating with one another by bronchial tubes; the latter being generally more or less hypertrophied, and partially dilated. These multilocular cavities have, I believe, been regarded as merely dilated bronchial tubes; but I think that there can be little doubt of their having the origin I have here assigned, inasmuch as we occasionally have an opportunity of examining a lung whilst the changes described are actually in progress, as was found in the cases from which the Drawings were taken. (See Plate VII. fig. 1.) In one there existed several excavations, somewhat like a magnified honey-comb, completely evacuated, and lined by an opaque

\* See the admirable description given of one form of such cachexy in the valuable work of Sir James Clark.

membrane, all appearance of pulmonary tissue being gone; whilst others were imperfectly discharged, one apparently in the first stage of softening, the grey matter being partly converted into a more yellow and more puriform-looking mass. The obscure, lingering, and less distressing form of phthisis resulting from these changes may, I think, in some instances, be at least strongly suspected, if not positively declared, before death; whilst not a few, I believe, completely recover, to die of some other disorder.

This form of pneumonic phthisis is, nevertheless much more rare than that which results from the granular deposit. The latter generally involves a great number of separate lobules, the interlobular cellular membrane remaining more or less distinguishable; and are either heaped together in a large and extensive mass, or scattered through an entire lobe, or even an entire lung. In these cases the softening process may be proceeding at a great number of points at once, and by no means necessarily commencing in the centre of each lobule; the irregular cavities thereby produced presenting, in many instances, little or none of the smooth lining membrane found in the cavities previously described, and the parietes consisting simply of an irregularly ulcerated pulmonary tissue. It is this form of pneumonic induration which is so closely allied to tubercular or scrofulous disease of the lungs; and which, for the reasons already given, is not in itself distinguishable from it. Phthisis from this species of softening is, I believe, generally fatal; unless, indeed, it be very circumscribed, as, for example, in one of the apices of the lung.

Respecting the grey pneumonic induration, I have little to add to what has been already stated. The softening usually takes place very slowly, either in one or in several points: the cavities thence resulting are, I believe, more frequently of moderate than of large size; and unless secondary changes and deposits shall have taken place from accidental attacks of inflammation, the resulting phthisis is proportionably slow. In the few well-marked cases I have seen the disease proved fatal through the supervention of a more or less acute attack of bronchitis or pneumonia. (Plates V. VI. and VII. fig. 2 and 3.)

In regard to the question respecting the cicatrizing of a vomica in the lung, I may observe, that the uniform albuminous, as well as the grey induration, is frequently distributed in a sort of linear form, so as very much to resemble a cicatrix: and considering the perfect identity of the physical signs of pneumonic consolidation with mucus in the tubes of the consolidated part, and those of pneumonic abscess, on the one hand; and the linear distribution of pneumonic deposit, with consequent puckering of the lung, on the other; I cannot resist the belief, that many at least, if not all, the reputed cases of cicatrized abscess may have been of this kind; although I advance the suggestion with all the deference due to the high authority of Laennec, and the scarcely less valuable opinion of Dr. Stokes.

Having described the ordinary deposits, diffuse and lobular, produced by acute pneumonia; and having stated what I believe to be the ordinary changes which take place in them an after period; I may be permitted, in conclusion, to refer to the changes which we so often have an opportunity of seeing in the apex of a single lung, as furnishing a very good illustration and sort of epitome of the whole of this part of our subject. The appearances alluded to are frequently discovered after death, without the least suspicion of their existence having been previously entertained, being merely incidental, and often met with in the bodies of those who have died a violent death, and who might be said to have been previously in perfect health. The total absence of tubercles, or any other disease whatever, in any part of either lung, goes far to negative their tubercular origin: the thickened pleura pulmonalis, the adhesion between the pleura pulmonalis and pleura costalis, together with the irregular puckering of the lung and pleura pulmonalis, sufficiently attest the previous existence of inflammation. On cutting into the part, we sometimes find a specimen of the uniform albuminous induration from acute pneumonia; or, though much more rarely, a well-defined round or oval cavity, lined by a smooth membrane. In other cases we have a very good example of the granular and yellowish deposit, probably in different stages of change, firm and dry, or softening down in various points, or forming irregular or tortuous sinuses

or cavities having an uneven, naked, or ulcerated surface; or, here and there, portions of dark-grey indurated lung puckered up, and perhaps embracing an irregular earthy concretion (See Plate VII. fig. 2.), thus constituting a mixture of the granular and iron-grey induration. In another case, we find it to consist entirely of the iron-grey induration, with or without partial softening or earthy change. Lastly, we may find the uniform albuminous, or the grey induration, so arranged, and occasioning such puckering of the pleura and lung, as strongly to suggest the notion of a cicatrix.

*(To be continued.)*

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[The above remarks having been read before the Physical Society of Guy's Hospital with the especial object of calling attention to certain points not generally understood, may, no doubt, admit of further illustration, which will probably be given hereafter; whilst much that would have been essential in a systematic treatise on pneumonia has been necessarily omitted.]—Ed.



# PLATE I

FIGURE 10. HIND LIGAMENT WITH ANOTHER PNEUMATIC CONNECTION  
 WITH PNEUMATIC LIGAMENT CONNECTION OF THE LIG. SEVERAL LIGAMENTS EXIST  
 DIFFERENT STAGES OF INFAMMATION. FROM HEAVY INCREASED TENSION TO  
 COMPLETE ADHESION OF THE TENDON AND CONSEQUENT ADHESION AS  
 SHOWN IN 11.

Plate 1.



W. Hurst, del et lith.

M & N Hanhart, li.





PLATE II.

*Fig. 1.*

Represents a section of lung affected with pulmonary apoplexy in three different stages :

*a a.* Blood recently effused into the pulmonary cells, occasioning an uniform reddish circumscribed consolidation.

*b.* A similar but older effusion of blood into the pulmonary cells, presenting an irregular surface ; and now rendered more distinct in consequence of the partial removal or separation of the colouring matter. The darker parts represent portions of the obstructed tissue, already disintegrated.

*c.* A still older effusion of blood into the pulmonary cells ; the clot and included tissue being separated from the healthy structures by an interposed albuminous layer.

*Fig. 2.*

*d.* A clot still older than that at *c*, shrinking by contraction from the surrounding albuminous membrane ; but still partially adhering to it by delicate albuminous bridles.

*e.* The cavity from which the clot *d* has been removed, shewing the whole of the interior lined by an albuminous layer.

Plate 2.

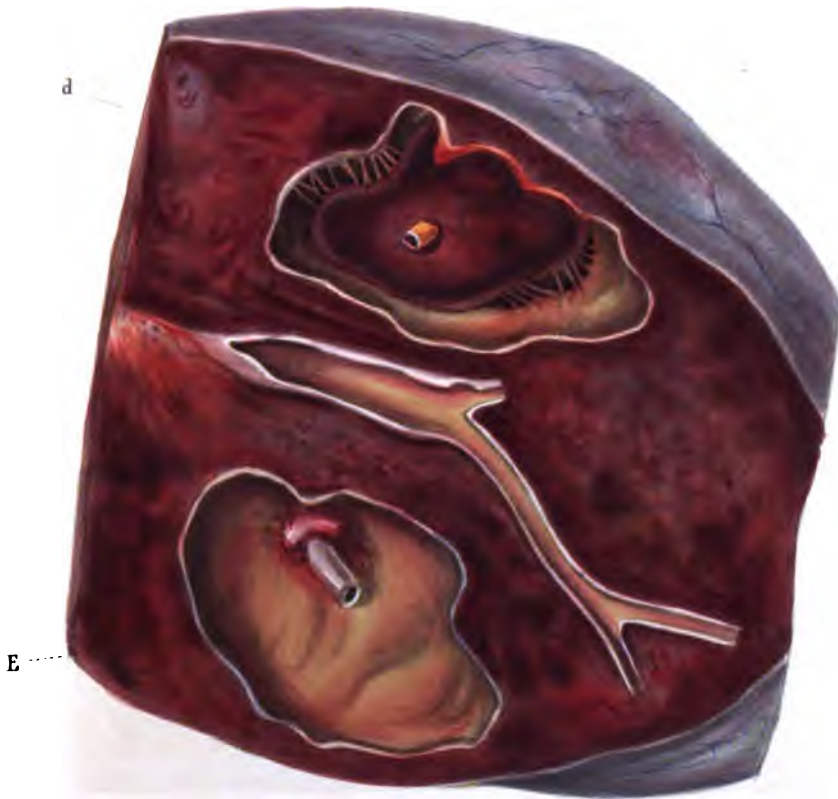


Fig 2



Fig 1

W. Hurst del et lith

M & N Hanha





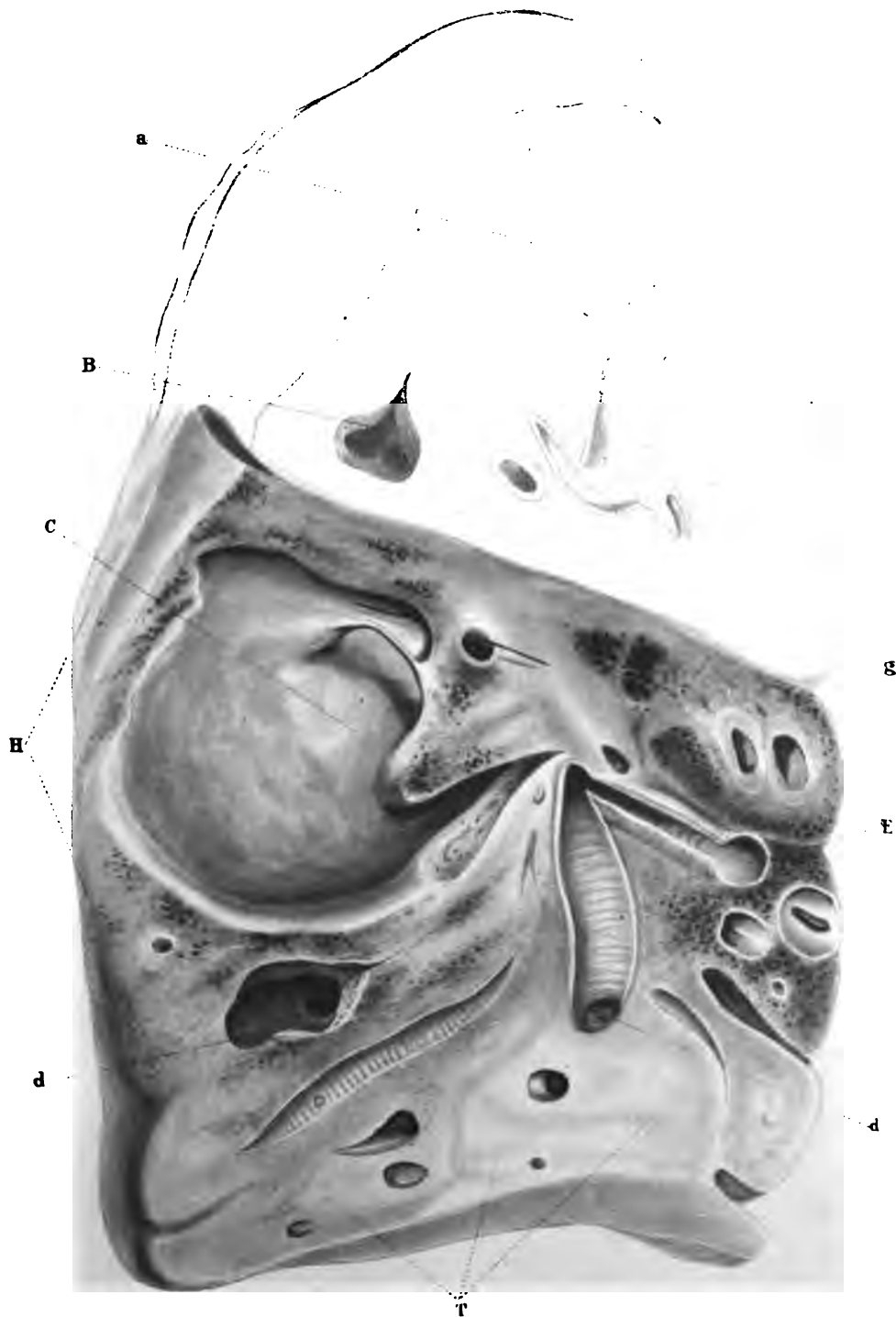


PLATE III.

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- a.* Portion of the superior lobe of the lung in a healthy state.
- b.* An irregular cavity, from softening of light-grey induration.
- c.* A large cavity, evidently of long standing, lined by a smooth firm membrane, and communicating with a large bronchial tube, into which a bristle is inserted.
- dd.* Sloughy softening of grey induration, bounded by a membrane, as seen at section *c*.
- f.* Uniform albuminous induration in its entire state, its contraction having led to a marked diminution in the size of the lung.
- g.* Septum between the lobes of the lung.
- h.* Old albuminous deposit on the pleura, situated above the large excavation.

Plate 3.



W. Hurst, del et lith.

M & N. Hanhart, lith. Printers

**PLATE IV.**

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*Fig. 1.*

Section of lung, shewing the granular induration, or less organizable deposit.

*a.* Old albuminous deposit on the pleura, with contraction and puckering of the surface of the lung.

*b.* Section of granular induration or deposit in the cells, discoloured by interposed black pulmonary matter.

*Fig. 2 and 3.*

Separate lobules, exhibiting the raspberry form externally.

*c c.* These lobules of their natural size.

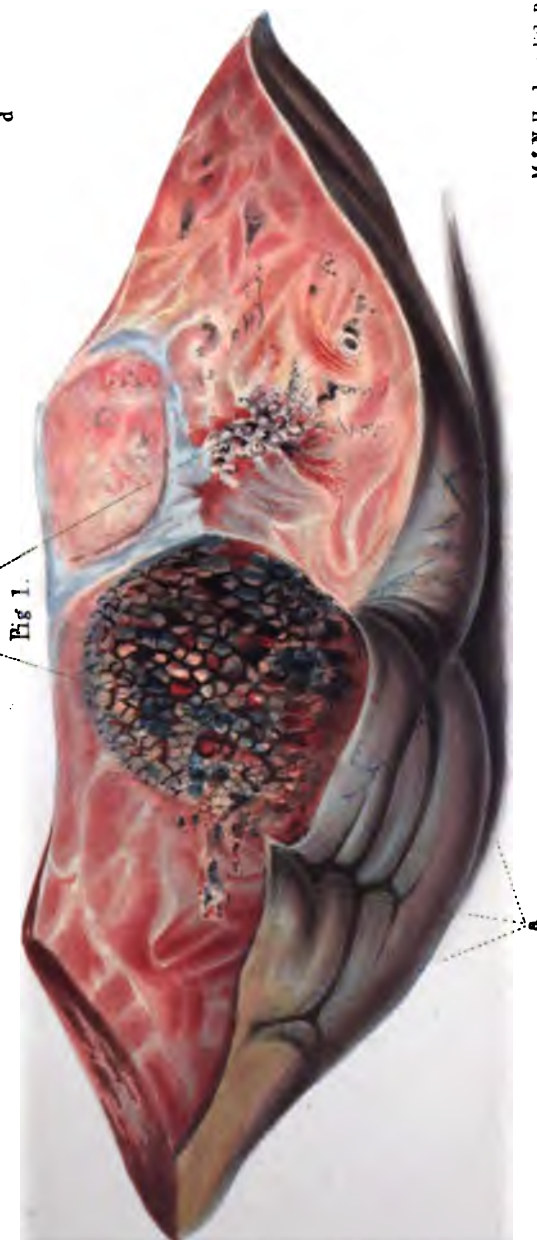
*d d.* Ditto, magnified.

Plate. 4.

Fig. 2.



Fig. 3.



rest. del. et lith.

M & N Hanhart lith. Printers



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PLATE V.

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Represents a section of lung affected with partial iron-grey induration.

*a a.* Pleura pulmonalis, thickened, contracted, and corrugated by old albuminous deposit.

*b.* Dark iron-grey induration of the lung, gradually diminishing from a centre, so as at length to disappear in healthy pulmonary tissue; which is, however, rather more than usually charged with black matter.

*c.* Portion of iron-grey induration, softened down into a vomica, and circumscribed by an albuminous deposit, as indicated by the surrounding white line.

Plate 5.

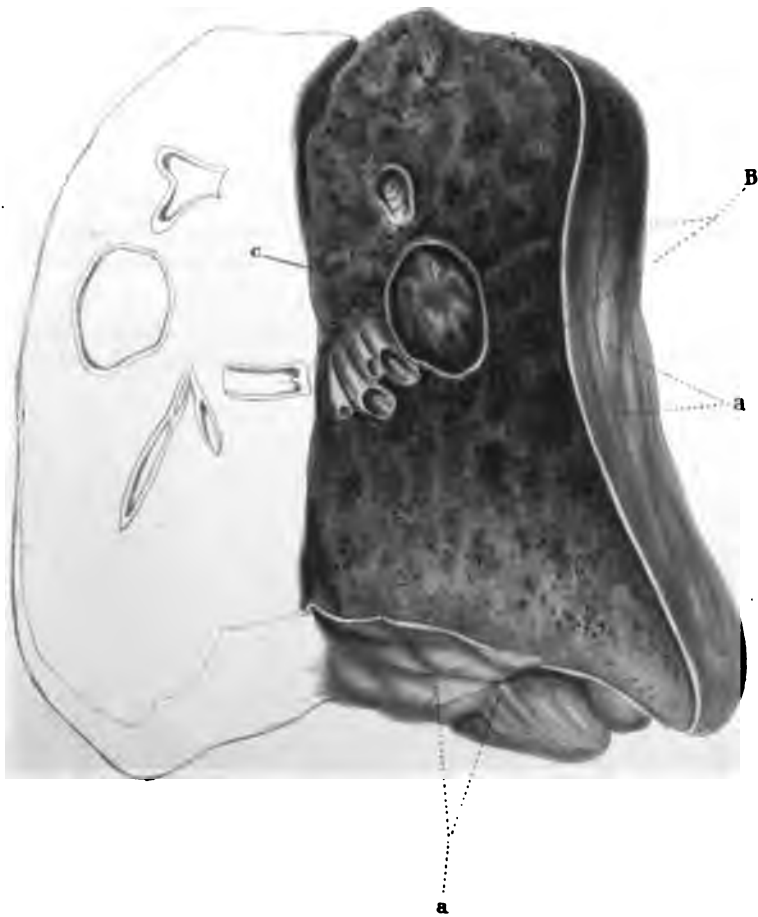








PLATE VI.

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A lung, with its pleura invested by albuminous matter, forming a thick false membrane, which, by its contraction, has limited the expansion of the organ; the lung itself being in a state of darkish grey induration, partially softened down into irregular cavities.

*aaa.* Thickened and contracted false membrane on the pleura pulmonalis.

*b.* Septum between the lobes, greatly thickened by old albuminous deposit.

*c.* Grey consolidation.

*ddd.* Irregular excavations, from softening of the grey induration.

Plate 6.



W. Hurel, del et lith.

M & N. Henhart li





PLATE VII.

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*Fig. 1.*

Represents a portion of lung affected with uniform albuminous, and light grey induration, softening down into cavities.

- a.* Uniform albuminous induration in progress of softening.
- b.* Light grey induration undergoing a similar change.
- c.* Cavities remaining after the expectoration of the softened tissues.

*Fig. 2.*

Portion of lung affected with iron-grey induration.

- a.* Cavity resulting from softened grey induration.
- b.* Bronchial tube and branches extending to masses of calcareous matter, the residue of softened grey induration.

*Fig. 3.*

Represent softening of grey induration, as shewn at *m m m*, communicating with the bronchial tubes, as shewn at *n*. *o.* A blood-vessel traversing the softened tissue, its parietes thickened, and its distal extremity closed in a conical form by the contraction of surrounding albuminous deposit.

Plate 7.

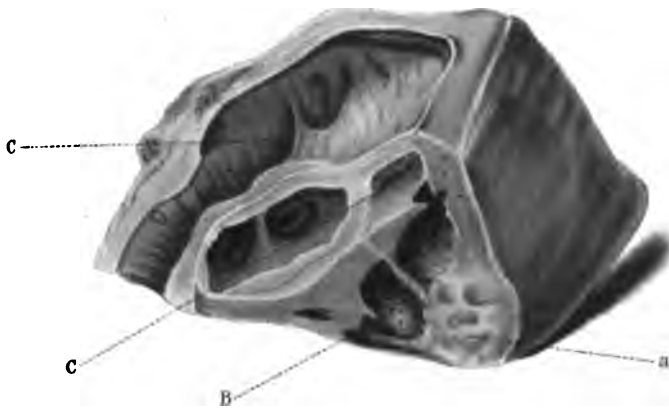


Fig 1.

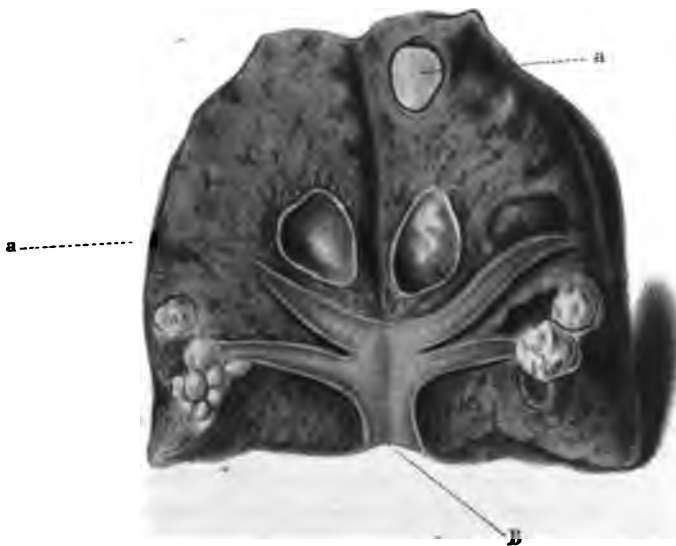


Fig 2.

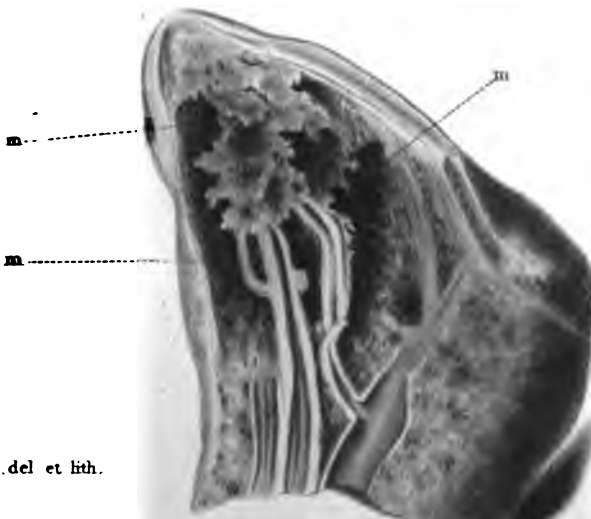


Fig 3.

W Hurst, del et lith.

M & N. Hanhart, lit. "





OBSERVATIONS  
ON  
LITHOTOMY.

BY BRANSBY B. COOPER, F.R.S.

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THE operation of lithotomy has been long a subject of the deepest consideration amongst surgeons, in this as well as in every other country in which the science of surgery has been cultivated; but even up to the present moment there does not exist any operation in surgery in which such various means are employed for its performance, or so much inventive skill has been exercised for its improvement: yet there scarcely exists an operative surgeon of any repute, in our many Institutions, who does not offer some peculiar mode of his own for the removal of a stone from the bladder. Varieties of instruments have been invented, from the most simple to those of the most complicated formation; the bladder has been attacked at every approachable point; but the result of all these experiments and inventions has been only to confirm the fact, that the more simple the instruments that are employed, and the more direct the course taken into the bladder, as inculcated and practised by Cheselden, the more safely may lithotomy be performed. The fact is, I suppose, admitted by all, that it signifies but little what are the instruments employed, if they be but directed by the skilful hand of an anatomist; while, on the contrary, the most complicated apparatus can never be safely used, or be made in any way to act as a substitute for the surgical knowledge necessary for the performance of this operation. Half the instruments which have been invented have, I believe, been constructed with the view of securing the passage into the bladder by some intricate mechanical construction; the inventor rather trusting to such means, than to the simple incision through parts with which he feels himself insufficiently acquainted. Such attempts, in every

surgical operation, are invariably dangerous; for as there are no two cases alike, the operator must always be prepared to vary his steps according to the nature of the difficulties which may occur, and must depend, therefore, upon his own judgment, and not upon the mechanism of his instruments. I believe it may be said, that it is a matter of but very little importance what are the instruments employed by a skilful lithotomist. May it not be admitted that there has been too much said and written about the operation for the stone; and too little attention paid to the circumstances which lead to its formation, and the means which should be employed for its prevention?

The sources of stone or gravel complaints may be attributed principally to the three following causes—indigestion, diseases of the kidney, and affections of the bladder; although it does sometimes happen that calcareous concretions are deposited around foreign substances accidentally lodged in the bladder, and without any of the organs or important functions alluded to being affected, or, if so, only secondarily.

Indigestion comprehends too extensive a subject to be fully entered into under our present consideration; and it may be enough merely to allude to that state of assimilation which has particular reference to the chemical state of the urine. It must be admitted, that a healthy performance of the assimilating function tends most materially to enable the urine to hold all its constituents in solution; while, on the other hand, that any circumstance which disturbs this power so alters the normal condition of the blood, that the kidneys are no longer capable of eliminating from that fluid the natural constituents for the formation of healthy urine. Thus, then, in those forms of indigestion in which acidity preponderates, it is not unfair to suppose that the same relative state of unequal acid proportions exists in the fluid from which the urine is separated, and hence the lithate formations. Chemical pathology, in fact, may be considered as essentially important, in enabling the physician or surgeon to ascertain the cause of the formation of urinary concretions, as well as to apply the appropriate remedies for the prevention of its further deposition, and cure.

Of the diseases of the kidneys, as connected with the formation of calculi, little or nothing is, or can be known, until we

possess a more perfect knowledge of the physiology of secretion itself: still, it is not difficult to conceive that a morbid condition of the secreting portion of the kidney would lead to an alteration in the fluid secreted: hence, as in the case of indigestion, a tendency to deposition may be produced. But connected with the formation of calculi in the kidney, the various morbid alterations of structure in that organ, so generally found, may be considered therefore rather as the effect than the cause of the disease. Great attention should be paid to all the symptoms arising from this disorganization, so as to judge of the extent of lesion, which, if existing to any great extent, would necessarily preclude the propriety of lithotomy. The affections of the bladder resulting from the existence of calculus in that organ give rise to different considerations as to medical and surgical treatment: for it is to be remembered, that the bladder in no way alters the nature of the secretion of urine, being merely a receptacle for the fluid conveyed to it by the ureters; the only change which it is liable to undergo being its mixture with the mucus that lubricates the surface of the bladder. If, however, any mechanical or vital cause delays its periodical evacuation, the urine has a tendency to decompose; and should there happen, concomitantly with this retention, any morbid condition of the fluid, depending on its undue elimination from the blood, concretions are liable to be formed in the bladder. But unless there be defect in the urine itself, its retention will not lead to the formation of stone, as may be seen in cases of paralysis of the bladder from injury to the spine: although decomposition of the fluid takes place in those cases, as is evinced by the ammoniacal odour which urine under these circumstances emits, still calculi are not found. This change is attributable to an altered state of the mucus secreted by the bladder becoming highly alkaline from the presence of an undue proportion of soda, which, mixing with the urine, unites with its lactic or phosphoric acid, and sets the ammonia free which had been previously in combination with those acids.

The rationale of the formation of concretions around a foreign body in the bladder, as a piece of bougie, is not very explicable, unless it be analogous to a crystallization around a foreign body suspended in a saturated solution of a neutral salt.

If there be reason to believe that a patient be diathetically disposed to the formation of urinary calculi, as ascertained by a chemical examination of the urine, the question naturally arises, whether we can, by medical means, prevent the formation of a calculus, or, if formed, effect its removal. If, from the state of the urine, it be ascertained that there is a tendency for the earthy salts, from their preponderance, to crystallize, there can be no doubt but that appropriate remedies may do much in preventing their concretion; partly by the use of chemical agents in altering the condition of the urine, and partly by such constitutional remedies as tend to improve the assimilating powers of the digestive apparatus; the latter of which may perhaps be considered the more important, as those chemical remedies which are intended to act upon the urine are probably neutralized in the stomach and intestines, and never reach the kidneys. It is obvious, if this view be admitted, that the empirical mode of practice which has so frequently been adopted, by the use of Stephens' drops, lithontriptics, and diet-drinks, can only be useful so long as they agree with the general state of the digestive functions.

Functional disease of the kidneys and bladder may be ameliorated by the use of *uva ursi*, *liq. potassæ*, and similar remedies, by diminishing the irritability of these organs; but morbid alterations of structure can seldom or never be successfully combated, as the diagnostic marks of disorganization fail in pointing out where these changes first take place.

When a stone has lodged in the bladder, whether it has formed there or passed in from the kidneys, a train of symptoms are produced which enable us to distinguish its presence with a probability approaching to a certainty. The patient has an intolerance of motion; is generally easier in the recumbent than in the erect or sitting posture; under exertion, there is a frequent desire to make water, and only a small quantity of urine is passed at a time, and generally of a paler colour than is natural to the secretion. If, under exertion, there be any jolting motion, as in riding on horseback or in a taxed cart, the desire to make water is much increased; but frequently, while flowing, it will suddenly stop, by the stone falling into the neck of the bladder, producing a violent paroxysm of spasm, and frequently followed by a flow of bloody urine.

During this paroxysm the desire to pass a motion is generally experienced; and the patient, to relieve his sufferings, bends his body forwards, with his legs separated, and in this position he voids the last drops of urine, complaining of a darting pain in the glans penis, thus referring the sensation to the extremities of the nerves, and not to the part immediately irritated by the stone.

Such are the most prominent features of the presence of a stone in the bladder; but an ulcerated state of that organ, certain diseased conditions of the prostate gland, or the presence of little sandy concretions, may produce very similar symptoms. It is therefore essential that the actual presence of a calculus may be ascertained, that the operation of sounding the patient should be had recourse to: nor do I consider it necessary to give a detailed account of this operation, as the mode is well known, even to every tyro. I may, however, mention the propriety of the introduction of the instrument into the bladder with the greatest gentleness, and of the frequent necessity of sounding the patient in different positions of the body; as the stone, particularly if small, is liable to elude the instrument in one position, although it may be easily detected in another. The detection of the calculus is sometimes facilitated by the passing of the finger into the rectum, thus to raise the stone when it has lodged behind the prostate gland. The object of sounding is not only for the purpose of discovering the presence of a calculus, but also that the size, weight, number, form, and consistence of the concretions may be ascertained. But to appreciate these qualities, a hand accustomed to the operation is required; so that a pupil should lose no opportunity of practising it, and should remember that such an opportunity may be obtained by putting calculi of different sizes and forms into the bladders of their subjects appropriated to dissection. Having ascertained the presence of a stone in the bladder, the question necessarily arises in the surgeon's mind as to the best means of removing it; and the use of lithontriptics, lithotritry, and lithotomy, may each suggest themselves to his mind.

In the use of the first, the object must be either for the actual dissolution of the calculus, or merely by overcoming the cohesion of its integrate parts, so that it shall be carried off

with the urine in form of sand ; and these remedies have been administered at different periods, both in the form of internal remedies and as injections into the bladder.

I appeal to experience as to the result of the experiments which have been made ; and believe I may venture to say, that we are not at present possessed of any medicine capable of dissolving, with safety to the patient, any calculus already formed, either in the kidney or bladder. But although such a desirable remedy has not yet been discovered, we are not to despair of the accomplishment of this much-to-be-desired object, knowing what great benefit has already been derived from the application of the science of chemistry in the treatment of stone, by the administration of remedies which have the effect of diminishing the irritability of the bladder, and thus alleviating the sufferings of persons labouring under this disease. Nor can much more be said for the efficacy of injections for the cure of stone : they may palliate, but, as yet, we have no evidence of their removing a calculus when once formed ; although, like medicines taken internally, they may sometimes relieve the sufferings produced by a stone in the bladder. Dietetic observances, alkaline remedies with opiates, and diluent drinks with injection of the bladder, may all, or each, relieve ; but no hopes can be justly entertained of their producing a cure of the disease, when once a stone is formed.

Our next consideration shall be, when the operation of breaking down the stone, technically termed lithotrity, is to be preferred to the operation of lithotomy. This desideratum has occupied the attention of many eminent surgeons, and lengthened dissertations have been the result of their deliberations. I think, however, that very few words need be said on the subject. There can be no doubt that there are cases in which lithotrity is infinitely preferable to lithotomy ; and equally true, that there are many others in which it is wholly inapplicable : nor are the means of judging between these two conditions at all difficult ; and the circumstances which should regulate the choice are few, and easily appreciated. In cases of small stone, and a bladder capable of containing from eight to ten ounces of water for a considerable time, I believe the operation of lithotrity may always be recommended ; and not even a moderately diseased state of the

kidneys need prohibit this operation, although it would incur a considerable increase of danger in lithotomy : indeed, the removal of the stone by crushing is so simple, under the described circumstances, that there is a just hope of the condition of the kidneys becoming improved when the calculus has been removed from the bladder, unless they have undergone some organic change ; and even then improvement may be expected from the removal of so great a source of irritation as is inseparable from stone in the bladder.

A patient requires but little preparation for the operation of lithotrity ; the principal fact to be ascertained is, whether the bladder is capable of retaining a sufficient quantity of fluid to keep it in a fit state of distention to allow the lithotrite to act without fear of injuring the coats of the organ. If the bladder be irritable, the operation should not be immediately proposed ; but remedies should be administered to alleviate this symptom, and tepid water should be daily injected into the bladder, increasing the quantity and period of its retention until the patient is capable of retaining eight ounces long enough for the operation to be performed, which may then be considered safe. No further preparatory treatment is required than merely to open the bowels freely before proceeding with the operation. The most convenient position for the patient to be placed, is upon the foot of a low bed, with his feet resting upon two chairs, sufficiently separated as to allow the operator to stand conveniently between them. The bladder should be injected so as to contain about six or eight ounces of tepid water. The lithotrite should then be carefully and gently passed into the bladder, invariably with the screw tightly turned home, so as to secure the close adaptation of the claws of the instrument. The lithotrite is not to be passed into the bladder with the same motions of the hand that the sound or catheter is introduced, but it is rather pushed or pressed onwards, the penis being drawn forwards upon the instrument. Directly the bladder is entered, the screw should be turned so as to release the blades from its influence, and they should be separated : if at this time any water makes its escape by the side of the instrument, an assistant should press the urethra against it, and prevent its flow. The operator then presses the convexity of the end of the lithotrite with



considerable firmness against the inferior region of the bladder, so as to render that part the most depending: into this cavity the calculus naturally falls, is immediately felt through the instrument, and is easily grasped by closing the blades; when, by the action of the screw, it is to be broken down, and piece after piece to be seized until it is crushed into fragments sufficiently small to pass through the urethra. As to the number of times the stone may be seized, no definite directions can be given, as it must depend upon the temperament of the patient, and the degree of suffering complained of; but the surgeon may bear in mind, that the more he can safely do at the first operation, or sitting, as it is sometimes called, the better. Each time the lithotrite is passed, the approximation of the blades should be secured by the turning of the screw to its fullest extent; a precaution which is not always taken, but is important, as it prevents the possibility of the blades separating during their passage through the urethra, and the consequent liability of injury to the membrane. The bladder should then be well washed out by injecting it with considerable force, and the water allowed to be drawn off through the catheter as rapidly as it can be made to flow; and in this effort considerable quantity of detritus is sometimes brought away: but this is not invariably the case, for it sometimes happens that but few fragments come away directly after the operation, although the stone may have been effectually crushed. It is not safe to allow the patient to walk or move about after the operation: he should be immediately put to bed, and a large dose of opium administered, to check the liability, which almost invariably occurs, of a rigor, as well as to overcome the irritability of the bladder, excited necessarily by the irritation to which it had been submitted. The prevention of the rigor is a matter of the greatest importance; for if it be not prevented at first, by the opium, there is not only the ill effects of it to overcome, but it seems as if the patient became subject to its recurrence; while, on the contrary, if it be stopped at first the patient seems to be but little prone to it subsequently. This fact I learned from my friend Sir Benjamin Brodie; and am, from experience, thoroughly convinced of the accuracy of his judgment, on this, as on every other surgical subject. For the first two or three days the patient should be kept in bed,

and should pass his water in the recumbent posture, not attempting to force the fragments away with his urine until the irritability of the bladder has ceased; and then he should micturate in the erect posture, or even lean forwards, so as to direct the broken portions of stone towards the urethra. If a fragment becomes lodged in the passage, attempts should not be immediately made for its extrication; but a dose of opium should be given, and the patient remain in bed to await the chance of its passing with the next flow of urine. Should this not happen, but still the urine pass, the surgeon should not yet interfere; but if, on the contrary, the urine cannot escape, the fragment must be removed by mechanical means. For this purpose, various instruments have been invented, forceps of different forms; but the best I have seen, and which I have found upon one or two occasions perfectly efficient, is a French instrument, which is made in the form of a straight staff, with a joint at the extreme end and a screw at the top. This instrument is of small size, as it is intended to pass beyond the foreign body in the urethra; the screw is then turned, which acts upon the little joint at the extremity, which is thereby brought to a right angle with the shaft of the staff; and then, by gently withdrawing it, the fragment is drawn up with it. Sometimes, however, these means may fail; and then it will be required to cut the portion of the calculus out of the urethra. This necessity most frequently occurs fortunately at the orifice of the urethra, which is the narrowest part of the canal, and is a matter of no danger as to results. Not so, however, when the stone becomes compacted low down; for although there may be found very little obstacle to its removal, it may prove afterwards very difficult to heal the opening, in which case a fistulous passage may permanently remain. Before, therefore, the surgeon proceeds to cut out a fragment which is compacted low down, every means should be attempted to facilitate its passage with the urine. Opiates, warm-bath, and tartarized antimony, should be exhibited; and should these remedies fail, attempts should be made to push it back into the bladder, that it may be further broken down by the use of the lithotrite. If this attempt fails, then, and not till then, should it be cut down upon, and removed. If, however, it becomes actually necessary to cut down into the perinæum

to remove the calculus, I believe the best way of healing the opening, or rather to facilitate its healing, is to use the catheter whenever the patient requires to pass his water for the first week or ten days, so that no urine may pass through the wound; and this plan I think preferable to leaving an instrument constantly in the bladder, as the urine has a tendency to pass between the urethra and the catheter, and so escape through the wound.

Although circumstances may arise which may render the operation of lithotomy unsafe, it does not necessarily follow that the operation of lithotomy should be proposed, for it is the duty of the surgeon first fully to ascertain that the general health of the patient renders him a fit subject to be submitted to such an ordeal. In the first place, I should say the state of the urine should be strictly investigated; and if it be found, by the application of heat and acid, to contain albuminous matter, the patient is to be considered as totally unfit, for the present at least, to be exposed to the hazard of the operation. The state of the heart and lungs, of the abdominal viscera and more especially of the liver, should each be the object of close investigation;—I say especially of the liver, because of its liability to disease, and not unfrequently to a fatty degeneration; concomitant with which the vital powers are invariably much diminished, and the subject of the disease but little capable of sustaining the effects of the reparative efforts of the constitution. Such cases, however, are not to be despaired of: medicinal means should be employed; change of air and scene recommended; and every attempt made to restore the patient to such a condition as may enable him to undergo the operation. When, however, there are none of these cogent reasons for delaying lithotomy, yet there is a previous preparation which the patient ought invariably to be submitted to; and for which no general plan can be adopted, as it must in every instance be regulated by the peculiarities in the constitution of the individual. Thus, in plethoric habits, it is quite necessary to have recourse to depletion, and both blood-letting and purging may be requisite: indeed, I have generally found them more efficacious when conjointly employed, than when either have alone been resorted to. I consider it also of great importance to prepare the patient's mind as well

as his body for what he has to undergo; and for this purpose it is of the greatest importance to describe to him the position in which he will be obliged to be placed during the operation: for I have not unfrequently seen a patient, particularly in the better class of life, who had heroically made up his mind to submit, and walk most firmly to the table, sink into despair on ascertaining the constrained position to which he was to be submitted. It is also of great use to request the patient, for a few days before the operation, to remain for five or ten minutes in the attitude of grasping the soles of his feet, in order to accustom him to so unusual a position of the body; and thus not only diminishing the terror, but also the inconvenience, which would otherwise produce a great increase of excitement during the operation.

The night previous to the operation a purgative should be administered, and the following morning an enema should be employed, for the purpose of securing a complete evacuation of the rectum. In very irritable habits it is also advisable, after the action caused by the enema has ceased, to inject about thirty drops of laudanum, in an ounce of gruel, into the bowels, with the view of lessening the muscular irritability of the parts, as well as to produce a beneficial sedative effect after the operation has been performed. Let me be pardoned for considering it necessary to surmise that all this the surgeon himself should be certain has been effected before the appointed period for the operation, that the patient's mind may not be kept in agitation by unnecessary delay.

I might now commence a chapter on the various operations which have been at different periods performed, and of the numerous instruments which have been employed; but, for the reasons which I have already given in my prefatory remarks, I shall content myself with the description of what is termed the lateral operation, almost invariably performed now in every country, because it affords the most direct and safe passage into the bladder. As to instruments to be employed, there are few that are not applicable, if directed by the hand of an anatomist and a surgeon: although, after considerable experience, I can but, in justice to Mr. Key, express my preference to the straight staff, but it must be in the hands of those who appreciate its value and understand how to benefit by the

advantages it affords. The operation of lithotomy should never be undertaken without well considering every separate step necessary to its completion, and not at once to dwell merely on the ultimate object, the extraction of the stone. Nor in considering each step should the facilities alone be considered; but every difficulty which can possibly occur, contemplated, and the means of obviating them anticipated: indeed, much more depends upon the discipline of the operator's mind than upon the mere dexterity of his finger; and it can hardly happen that the manipulation should be dexterous when the instrument is not directed by the judgment of the operator.

The steps of the operation of lithotomy may be divided into four:—

- 1st. To lay open the perinæum.
- 2d. To lay open the pelvis.
- 3d. To lay open the bladder.
- 4th. To extract the stone.

To commence this operation the patient should be placed upon a table about two feet four inches high, and secured by ligatures confining the palms of the hands to the soles of the feet; and in adults another ligature should be passed under the hams and fastened around the back of the neck; an assistant on each side taking hold of the knees, so as to separate the legs from each other, and at the same time using downward pressure, so as to keep the patient's pelvis well fixed upon the table. It may be necessary in some cases, when, from the narrowness of the urethra, there be any difficulty in passing the staff, to do so before the patient is bound; but otherwise it is better to confine them first, as the instrument is liable to be struck by the assistants during that procedure. The shoulders should be raised by pillows, so arranged as to give a general and equable support to the back. The staff being introduced, and the stone felt (which should be done by others as well as the operator), it is to be given to an assistant to hold firmly with his right hand, while standing on the left side of the patient. It should be here remarked, if the straight staff be used, that it cannot be brought to a right angle with an horizontal line, as the curved instrument can, but only to the angle of 45°, beyond which it should not be attempted to be raised, as its point is liable to be drawn out of the bladder.

The first step of the operation is then to be performed by laying open the perinæum: that is effected by making an incision through the integuments, fat, and superficial fascia. The incision is to commence a little to the left side of the raphe, and about a finger's breadth below the point of junction of the raphe of the perinæum and scrotum, and to be continued downwards and obliquely outwards to a point midway between the centre of the verge of the anus and the tuberosity of the ischium. The degree of obliquity of this incision depends upon the distance between the tuberosities of the patient. A triangular space is thus laid open, bounded above by the membranous part of the urethra; below by the transverse muscle and artery of the perinæum; on the inner side and in the median line by the accelerator urinæ; and on the outer by the erector penis. Nothing untoward can be expected to occur in this step, unless a fistulous opening or abscess be exposed; or perhaps, from an unusual size of the superficial perineal artery, such a hæmorrhage may occur, from the necessary division of some of its branches, as to require a ligature to arrest it.

The second step consists in laying open the pelvis. This is effected by passing the forefinger of the left hand sufficiently deep into the upper part of the wound as to feel the groove of the staff in the membranous part of the urethra, and into it the point of the knife is to be introduced, so as to get beyond that portion of the deep fascia termed the triangular ligament of the pubes: the knife is then to be carried downwards in the same direction as the first incision; and thus the whole length of the deep fascia of the perinæum is divided, together with the transverse muscles and artery of the perinæum, and some fibres of the accelerator urinæ. In this step of the operation the principal point to be observed is the opening of the urethra at its membranous part, avoiding as much as possible the bulb and its large artery. It is in this incision the surgeon may wound the rectum, but which may always be avoided by the oblique direction of the incision towards the tuberosity of the ischium, as well as by the precaution of having the bowels perfectly emptied before the operation. Many surgeons defer the opening of the urethra until they cut into the bladder, but I prefer commencing the second step as above directed; first, because it offers a precise

point for commencing the second incision; and secondly, because it secures the complete division of the deep fascia, a portion of which is otherwise liable to be left undivided, requiring, probably, a further division for the removal of the impediment which it may offer to the extraction of the stone. Notwithstanding every precaution, however, the artery of the bulb is sometimes wounded, which, from the depth of its situation, and its tendency to retract, renders it very difficult to secure; nor should much time be lost in the attempt, but the operation should be finished, and then, by pressure, the bleeding may be stopped. My friend, Mr. Travers, had, some years ago, great difficulty in arresting bleeding from the artery of the bulb; but succeeded by the ingenious and scientific expedient of placing a hard compress of cork under his recumbent patient, in such a situation that the weight of his body compressed the internal pudic artery between the compress and the spinous process of the ischium. The precise point where the compress should be placed may be ascertained by drawing a line from the upper part of the trochanter major to the articulation of the os coccygis with the sacrum; and at the junction of the inner with the middle third of this line is situated the spinous process of the ischium, and the internal pudic artery passing over it. The propriety of placing the patient, under these circumstances, upon a hard mattress is sufficiently obvious.

Should the transverse artery of the perinæum occasion a troublesome hæmorrhage, as it sometimes does after its necessary division in this step of the operation, it may be readily secured, from its comparatively superficial situation.

Some difficulty may also occur in this second step of the operation in opening the membranous portion of the urethra, particularly to those surgeons who have been in the habit of using the curved staff; as, with the straight one, the depth appears much greater, from the absence of the usual curve of the instrument, which presses towards the perinæum, and brings the urethra forward: but, in my opinion, this apparent facility is, in fact, a detriment in the operation; and its absence constitutes one of the great benefits in the use of the straight staff, that the bulb is not pushed forward, and is therefore more easily avoided than when the curved staff is used;—an object of the greatest importance, not only from the fact of the artery

of the bulb being left undivided, but also from the more direct opening which is made through the perinæum into the bladder.

The third step consists of the division of the whole length of the membranous portion of the urethra and of the prostate gland, for the purpose of laying open the bladder. This is effected by again passing the knife into the groove of the staff, as at the commencement of the second step. Having ascertained that the knife is in the groove of the staff, without any interposing substance, the surgeon takes the staff from the assistant with his left hand, and depresses the handle until he brings it parallel with the knife and the vertical axis of the pelvis, which, being completed, presents a direct passage for the knife into the bladder. To accomplish this in the safest manner, the groove of the staff and the edge of the knife should be simultaneously directed towards the left side of the patient, at such an angle, that the passing of the knife will form an incision in a direction corresponding to those already made. If a cutting gorget be used instead of the knife, its edge should, in like manner, be laterally directed. In passing the knife along the staff into the bladder, as described, the surgeon has the option of regulating the size of the opening, either on its entrance into the bladder, by the angle at which he holds it with the staff, or, if passed parallel with it, he has the power of enlarging the opening as he withdraws the knife. The parts divided in this section are, the urethra, prostate gland, and the fibres of Wilson's muscle on the left side. The grand and principal point to be attended to in this section is, not completely to divide the left lobe of the prostate; for if its fascial covering be cut through, urine is sure to extravasate into the cavity of the pelvis, which, there can be no doubt, is the most frequent cause of death after the operation of lithotomy. In fact, although I have described that the object in the third step of this operation is to lay open the pelvis, correctly speaking this is not to be done; as its fascial boundaries should remain entire, excepting the small opening which is made in that part of the fascia which covers the pelvic portion of the urethra. The angle at which the cutting edge of the knife is passed through the prostate is not only important as to the direction of the incision which it makes, but also on other accounts. If too much directed outwards, it is liable to wound the artery of



the bulb close to its origin from the internal pudic; and if directed too perpendicularly downwards, the rectum, vesicula seminalis, or vas deferens, might be injured. If the artery of the bulb be cut in this step, so as to cause any continued bleeding, a canula should be passed into the bladder, surrounded with a firm compress of lint, by which means the bleeding vessel may be compressed for a sufficient length of time for its becoming closed, while at the same time the urine can make its escape. I do not myself believe that the internal pudic artery is ever, or can be, wounded in the operation for lithotomy, unless it happens to be the subject of some variety in its course, which does sometimes occur;—a fact which I consider might be ascertained by the surgeon during the operation, by feeling with his fore-finger directly after he has divided the deep fascia of the perinæum, and consequently before he commences the third step of the operation.

The fourth step includes the introduction of the forceps, and removal of the stone from the bladder. When the bladder has been opened, as already described, it is usually indicated by a gush of urine; but this is not always the case, and the surgeon is not therefore to consider that he has failed in his intention because no urine flows; for if the opening he has made is no larger than the knife or other instrument by which he has divided the prostate, the water may not escape. The operator should now commence the fourth step, by taking the staff in his right hand, and introducing the fore finger of his left into the bladder, to ascertain the size of the opening he has made through the prostate, and, if he can, the position of the stone. If the opening of the prostate be small, it is to be enlarged by the finger, which is very readily and safely done from the lacerable consistence of that organ; and being made of sufficient size, the finger being still retained in the wound, the closed forceps are to be passed along it into the bladder. In fat people, it sometimes happens that the finger of the operator is not sufficiently long to reach the bladder: in that case, the blunt gorget should be employed as a director for the forceps, and it is also an excellent instrument for enlarging the opening through the prostate. When the forceps are introduced, they are to be used as a sound, to ascertain the precise position of the calculus; and when felt, the blades are

to be opened, and the stone gently grasped and drawn forward, so as to enable the surgeon to examine its three diameters, and alter its position in the forceps, should it not have been seized in the best direction for its extraction through the wound; and this being accomplished, the flat part of the blades of the forceps are to be turned towards the pubes and the rectum, and the stone removed by drawing it forward and downward towards the anus. In effecting this object, numerous difficulties may occur, arising from the position, form, consistence, and size of the stone, for each of which the surgeon's judgment must be exercised to overcome; but they may prove insuperable, as I have myself known, under the hands of the best surgeons. Occasionally, soft or friable calculi crumble to pieces before they can be extracted. In such cases, it is necessary to remove every portion capable of being extracted with the forceps and scoop; and the remaining particles should be washed out by injecting tepid water into the bladder, which process may be facilitated by making the patient stand during this operation. In the extraction of the stone, too much stress cannot be laid upon the necessity of gentleness in the various manipulations which may be necessary; and when force is required, as it must often be in the extraction of large calculi, it should be applied gradually as well as cautiously, in order that the soft parts may yield to the passage of the stone, and not be unnecessarily lacerated. The difficulty which frequently occurs in this step is the greatest the lithotomist has to contend against, namely, that of seizing the stone with the forceps; and this may happen without any apparent cause for the delay, for the sound perhaps readily detected the presence as well as the position of the stone before the bladder had been cut into. The form of the calculus leads sometimes to a difficulty in its extraction; as, for instance, a very round stone slips from the gripe of the forceps; and a very small one eludes their grasp, and is not always indicated by the handles of the forceps, when contained between the blades. It has happened to myself; and I have seen others remove the forceps from the bladder of children, with the intention of introducing them again to search for the stone, but have found it lying in the hollow of the blades: it is better, therefore, when a small stone is expected, to use

flat-bladed forceps, which readily indicate any interruption to their close approximation.

When a round stone slips from the grasp of the forceps, a longer and larger pair should be substituted, which present a greater surface of contact, and generally readily overcome the difficulty. I think myself that the forceps are usually made too small, or, at any rate, too short for adult subjects.

Immediately the stone has been removed, the bladder should always be carefully searched, to ascertain that no other stone or portion of stone is left; and this being ascertained, the patient should be released from his painful position by the removal of the ligatures which secured him, but he should not be put into bed until all bleeding has ceased. When placed in bed, the thighs should be somewhat raised, by placing a pillow under the hams, and the shoulders should be slightly elevated, so as to relax the abdominal muscles. The knees should not be tied together, as is frequently recommended; as it tends to direct any blood which may flow into the bladder, where it may accumulate, unperceived, to a dangerous extent, and lead to great constitutional irritation. I have frequently witnessed severe rigors a few hours after the operation for the stone, and which have been relieved directly a coagulum has been expelled from the bladder by its own muscular efforts. No lint or dressing of any kind should be applied to the wound. In adults, a dose of opium should be administered directly after the operation; and this practice is more particularly required when the size of the stone, or other circumstances, may have led to a protracted operation. But in children, on whom the operation rarely occupies a longer time than a minute or a minute and a half, it is better not to give any narcotic, or at any rate not until bed-time, when some syrup of poppies may be advisable, to ensure quietude, if not sleep. The principal treatment after the operation consists in keeping the patient perfectly dry; and a doubled sheet should be placed under the nates, to be removed immediately it becomes wetted by the urine, and a clean one substituted. Urgent symptoms, however, too well known to every surgeon, do frequently occur, and especially in those cases in which the stone has been large, and required considerable force for its removal; or when the stone has broken, requiring the frequent introduction of

instruments. But the great source of danger, beyond all others, I feel assured, arises from too free an incision through the prostate gland, and the division of the pelvic fascia, allowing extravasation of urine into the cavity of the pelvis. The existence of this calamity is evinced by a quickened pulse, hot skin, dry tongue, anxious countenance, and tenderness over the lower surface of the abdomen, occasionally attended with rigors. Severe antiphlogistic means must not be employed in these cases: leeches, and fomentations to the abdomen, with calomel and opium, and serpentary with the liq. amm. acetatis, are the remedies which should be administered. But when the extravasation has led to extensive inflammation, and of that peculiar character which usually follows this mishap, but little hope can be entertained of the patients' recovery; and they sink under typhoid symptoms, attended with muttering delirium. Again let me therefore urge the propriety of making a small opening through the prostate with the knife, or any cutting instrument employed for its section. If the patient goes on favourably, in from six to ten days after the operation the urine begins to pass by the natural passage, from the obstruction offered to its exit through the healing wound of the prostate gland. Should the passing of the urine through the urethra be protracted beyond this period, it may be assisted by the occasional passing of a catheter; but it rarely happens that this interference is necessary. In such cases in which the calculus is too large to be extracted by the lateral operation, I believe it would be better to crush it by an instrument constructed for the purpose, similar to the lithotrite, only shorter and much stronger, so as to break the stone into two or three pieces, and then remove them with the forceps. The surgeon, therefore, when he expects to meet with a large stone, should be furnished with such an instrument, that he may apply it immediately he meets with the difficulty, and not be forced to submit his patient to the objectionable operation *à deux temps*, which has been recommended by some surgeons.

It is not very uncommon for the operation of lithotomy to require repetition; although, from the appearance of the stone, and the care that had been taken by the operator in the first operation, there was every reason to believe no portion had been left in the bladder. I have seen Mr. Martineau, and Dr. Rigby of Norwich, both perform a second operation upon the

same subject: the late Sir Astley Cooper has also more than once operated a second, if not a third time: and I have myself performed the operation three times on the same individual, and in a period somewhat short of four years. My patient was a farmer in the vicinity of Bedford: Mr. Williamson, Mr. Beck, and two or three other surgeons in the neighbourhood, were present at these operations. In none of them was the stone broken; in each, careful examination was made for the discovery of another calculus, both by myself and some of the gentlemen present, and all were satisfied that nothing was left in the bladder; but, notwithstanding all this precaution, I cut the patient a second and third time, at the expiration of about fourteen months between each operation, and am happy to say he is still alive and perfectly free from any disease whatever, being now a period of twelve years since the last operation. It has been recommended by some lithotomists, that in second operations the incisions should be made on the right side of the patient's perinæum, rather than to lay open the old cicatrix; but this I consider perfectly unnecessary, and wrong, because it is inconvenient. In the case alluded to, I operated each time on the left side; and the wound healed as readily on the third, as at the first operation: indeed, in three weeks he attended in the fields, during the hay-harvest. Before the patient, who has been the subject of this operation, be dismissed from medical care, the stone as well as his urine should be analyzed, that appropriate remedies may be prescribed to diminish the liability to the recurrence of the disease.

Patients should not be kept on very spare diet after the operation for the stone, or indeed after any severe ordeal of the kind: it should always be remembered, that you cannot diminish constitutional power without increasing irritability, and that therefore support is generally requisite, and should be early prescribed. I am quite sure one of the greatest modern improvements, in the treatment of patients who have undergone surgical operations, is with respect to the better diet that is early advised; and hence, I believe, the greater comparative success of operations in this, beyond that of any other country.

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[It has been found necessary, through want of space, to defer the publication of the cases referred to in the preceding observations, till the next Number.—ED.]

ON THE

## PATHOLOGY OF CELLS.

BY THOMAS WILLIAMS, M.B.

THE following article is intended to form the commencement of a series of Reports of facts and observations obtained and accumulated in the Microscopical Department of this Hospital; more especially by the examination of *Morbid Structures*, which the dead-house almost daily affords. From the comparative shortness of the time since these observations were first instituted, it will be seen to have been impossible to have amassed material enough for attempting any systematic classification of the numerous and diversified objects comprised within the limits of the present subject. Since, however, they are designed to bear only the character of "Reports," and to participate little in the higher qualities of "Essays," it will signify little in what order the subjects are treated.

1. A most remarkable æra in the history of modern Physiology is the period at which Schleiden and Schwann gave definite expression to the discovery, that all animal and vegetable tissues derived their common beginning from *cells*. The brief interval of time which has elapsed since the publication of Schleiden's *Phytogenesis*, and Schwann's more elaborate work, has been characterized by an extraordinarily rapid progress in the development and collection of facts in the department of physiology, which the genius of these two great observers had so successfully opened to view. But, notwithstanding the essential and important office which *cells* perform in the original formation and subsequent metamorphosis and regeneration of animal and vegetable structures, and the definite and intimate knowledge of their natural history which science now commands, with few exceptions, no systematic attempt has hitherto been made towards rendering prominent the great value and importance of the

microscope, as a means for the study and investigation of disease. Müller led the way in this interesting department, by the publication of his well-known work on morbid growths<sup>1</sup>. Dr. Gruby, of Vienna, has more recently published the results of his observations on some pathological fluids, in a little work<sup>2</sup> which can be considered by no means an unimportant acquisition to the literature of pathology. Raspail, too, in his Lectures, and in some of his later works<sup>3</sup>, has propounded certain abstract theorems in regard to the pathological susceptibilities of the ultimate "vesicles" or "cells" of tissues, which, if they add nothing to the treasury of *facts* which the microscope has already unfolded, are calculated to imbue the minds of less philosophical observers with principles as important as facts themselves, in the further prosecution of the subject. The recent laborious work<sup>4</sup> of Rokitsky, however, while it abounds in much novel and useful information in relation simply to the *external character* of morbid structures, presents us with few proofs of the author's having cultivated that more recondite division of the science of morbid anatomy, which seeks, by the assistance of the microscope, to resolve the solid products of disease to the simplicity of their elementary components. The names of many excellent observers in this country are identified with isolated contributions of no inferior value to the subject of the pathology of cells. In the list of casual contributors, the names of Gulliver<sup>5</sup>, Bowman<sup>6</sup>, Addison<sup>7</sup>, Dalrymple<sup>8</sup>, Smee<sup>9</sup>,

(<sup>1</sup>) On Carcinomatous Growths.

(<sup>2</sup>) *Observationes Microscopice ad Morphologiam Pathologicam*, auctore Dr. David Gruby, 1840. See also *Microscopic Journal*.

(<sup>3</sup>) *Le Nouveau Système de Chimie Organique*, 1838. *Lectures on Physiology of Health and Disease, &c.*, in *Medical Times*, by M. Raspail.

(<sup>4</sup>) *Handbuch der Pathologischen Anatomie*. *Wien*, 1842.

(<sup>5</sup>) Gerber's Anatomy. See also Papers in *Medical Gazette*, read before the Medico-Chirurgical Society, 1841--42.

(<sup>6</sup>) *Lancet*, January 1842, on Fatty Degeneration of the Liver. *Philosophical Transactions*, Part I., 1842. *Cyclopedia, Anatomy and Physic*: Art. "Mucous Membrane."

(<sup>7</sup>) Papers in *Medical Gazette* and *Lancet*, 1840--43, on the Red Particles of the Blood; read before the Microscopic Society, 1843.

(<sup>8</sup>) On the Mode of Ossification of Encysted Tumors; read at the Medico-Chirurgical Society. Reported in *Medical Gazette*, May 1843.

(<sup>9</sup>) On the Structure of Normal and Adventitious Bone.—*Medical Gazette*, Nov. 20, 1840.

and Wharton Jones<sup>10</sup>, are the most prominent; to each of whom science is indebted for communications of greater or less value and interest. At this early stage, in a field illimitably prolific in materials of study and research, the duties of the historian must abruptly cease. A singular distrust in the accuracy and fidelity of the microscope, as an instrument of investigation and discovery, has so alienated the taste of many well-informed pathologists, as to induce them to regard the facts ascertained directly through its assistance as something like the spectres of an imaginative eye, or the refined delusions of a complex optical mechanism, or, at best, the obscure shadows of infinitely-divided particles of organic matter, in reference to which it would be impossible to establish, with precision, either the figure or the size. Such unphilosophical scepticism is a libel upon the character of those whose lives have been ardently devoted to the furtherance of microscopic science. Under the shelter of a classic adage—*Nequeunt oculis rerum primordia cerni*—they seek to circumscribe the domain of observational science to the straitened limits of those grosser aggregations of matter, whose properties are cognisable enough to unimproved and ordinary sense. There is something unworthy of the present age in the puerile superstition which, with the complacency and boldness of "little knowledge," attaches, by its imputations, the character of doubt, uncertainty, and mystery, to a process of research which is strictly demonstrative in its pretensions. In this statement it is not desired to claim for it any supernatural immunity from error. Fallibility will continue to be the indelible attribute of every ramification of human science, so long as the qualities of men's minds will continue to exhibit variations in degrees. Philosophers, of any acumen and discrimination, have always perceived and taught, from Wollaston and Ehrenberg to the least-pretending microscopists of the present day, that the endowments and capabilities of the senses, like those of the mind, present palpable individual differences. In the examination of a morbid structure by the aid of a modern achromatic microscope, which enables the observer to resolve the object of study into

(<sup>10</sup>) Observations on the Anatomy, Physiology, and Pathology of the Blood.—Foreign Review, 1842.



its *ultimate* and integral *cells* and *filaments*, and their parent molecules and capillary system—conducting thus the eye, and therefore the mind, into nearer approach to those more hidden and deeper elements, in the definite characters of which it may read the incipient and secret changes which, by their silent continuance, lead to an accumulation of diseased product, which soon and sensibly proclaims a departure from the healthy state—contrasted with that coarser and more summary method of examination which obliges the pathologist, however inquisitive he may be, to rest contented with simply looking at, handling, and dissecting, a compound mass of heterogeneous mischief, in the combined and collective characters of which there is little which can be recognised and interpreted with exactitude—it becomes at once evident, that this invaluable instrument should be in future accepted as the inseparable companion of the morbid anatomist.

The difference between a primitive cell and a mass of organized structure is not simply one of proportion or magnitude. Although not strictly an elementary body, an ultimate vesicle, even if it were endowed with a nucleus, and this with a nucleolus, is, in its mechanical construction or organization, infinitely less complex than the mass. And does it not follow, as an obvious inference from the enunciation of this fact, that an organ so simple must, under the conditions of disease, present changes and phenomena *proportionably* more satisfactory and intelligible than a complex organ of more elaborate manufacture. There is, however, another point of view in which the dissimilar relations of the primordial cell and the compound organ assume surpassing interest, when contemplated by the pathologist. By the concurrent labours of Valentin, Purkinje, Henle, Müller, Wagner, Turpin, and, above all, by the more recent and conclusive investigations of Dr. Martin Barry<sup>1</sup>, Mr. Goodsir<sup>2</sup>, and Mr. Bowman<sup>3</sup>, the position has become fundamental in philosophy, “that nearly all the animal tissues, however great the alterations they may have undergone in

(<sup>1</sup>) Phil. Transactions, 1839.

(<sup>2</sup>) Edin. New Phil. Journal, July 1842.

(<sup>3</sup>) Phil. Transactions, 1842.

structure and properties, have their immediate origin in cells; and that in animals, as in plants, *all the changes in which organic life essentially consists* are performed by cells<sup>(4)</sup>. A Cell is the ultimate limit of organized structure. When the formative blastema—a structureless substance more or less fluid—assumes the attributes of organization, this is the first visible form under which it presents: it is an atom of organized matter, beyond the limits of which division would be as impracticable as it would be incompatible with the idea of elementary unity. A primogenial cell abruptly assigns the confines of microscopic analysis; but the diversities of size allowed to this primitive organismus range from dimensions of immeasurable minuteness to the magnitude of a cell visible to the naked eye. The component organs of a polygastric animalcule, the whole bulk of whose body does not equal the dimensions of a nucleated cell, must occupy an inconceivably minute extent of space: an object of indisputable corporeity, which can be contained within a point of space measuring less than the  $\frac{1}{376,000}$ th of an inch<sup>(5)</sup> is indeed, though a *small fact*, quite ample enough to kindle in every contemplative mind unqualified sentiments of wonder at the unfathomable profundity of organization. These refined depths of analysis, however, since they occur in the remoter regions of animate nature, which the morbid anatomist will be seldom required to visit, need scarcely intimidate the honest inquirer, or deter him from industry and exertion in more accessible departments of useful and available knowledge. As formerly stated, the primitive or ultimate cells of organs are the immediate agents of all the *organic processes*: the elaboration of nutrient matter, in all its stages and its disintegration, for the purposes of secretion and elimination, are essentially *cell-phenomena*. The circulating system, even its capillary segments, accomplishes the subsidiary and secondary purpose only of mechanical conveyance. It must not, however, be forgotten, that the *blood* itself, during its incessant circuits through this complex system, undergoes changes of organic composition preparatory and necessary to the

(4) Carpenter.

(5) Ehrenberg.

subsequent steps of *solid* organization<sup>1</sup>. It requires no prophetic vision to perceive that the remarkable advances which these discoveries have effected in physiology are destined to produce correspondingly-important changes in the character of pathological science, and to widen the limits of those narrow bounds within which the routine morbid anatomist has hitherto been accustomed contentedly to circumscribe his inquiries.

The conclusion is obvious, that the *same* organic laws preside over the combinations and resolutions of the minutest, as of the most colossal aggregations of living matter—a monad, as of an elephant—a simple primordial *cell*, as of a voluminous compound organ. It is therefore difficult to enunciate a proposition more rational than that which inculcates, that the most fruitful materials for the successful extension of pathological science lay hidden in the integral elements of structure, and veiled from the eye of the cursory observer by the ponderous mass which progressive changes may have accumulated. If not the *principia*, cells unquestionably are the *seminia morbi*—the machinery of propagation.

It is scarcely necessary to present an hypothetic delineation of the origin and progress of a morbid growth, in order to render them intelligible; but let it be conceived, that the eye of the microscopist recognises the indications of the disease, on the minutest possible scale, in *one* of the elementary *cells* of an organ<sup>2</sup>: this may be either *functional*, or it may be so far organic as to have deranged and altered the physical character of the little organ: if the morbid causes were to cease at the incipient stage of their operation, it is evident that the little cell might have undergone disease, and eventual decay, without causing any conceivable departure from

(<sup>1</sup>) For a lucid analysis of the subject, I beg to refer the reader to the "Report of Dr. Carpenter on the Physiology of Cells;" Forbes's Foreign Review, Jan. 1843;—and Mr. Wharton Jones's "Report on the Blood," in previous Number.

(<sup>2</sup>) The *cell* of an acephalo-cyst is believed by Professor Owen to be an actual illustration of this idea. See Lectures on the Comparative Anatomy of the Invertebrata, p. 44.

the total sum of the organ's function. It would furnish a pointed example of what is popularly described as "molecular death." Let, however, this imaginary case be further extended; and suppose that the disorganizing process, having its point of origin in the remoteness of this primordial cell, were to communicate to the affected particle the morbid power of propagating the same diseased tendency to all the contiguous vesicles;—by this work of silent invasion, a sum of accumulated consequences would soon result, which at length would openly pronounce the presence of disease. Thus, disorder of an organ, or a part, is manifestly proclaimed only after the lapse of a considerable interval of time, during which the number of the affected organs (cells) has undergone palpable multiplication. When the process of disorganization originates in the focal point of a minute and isolated cell only, with what multiple profuseness may not the mischief extend when it spreads the subtle principles of contagion to every vesicle within the reach of its poisoning secretion. It cannot, therefore, be maintained that such a source is a germ too inconsiderable to produce those giant consequences of disease which are required to endanger the stability of the whole body. But suppose the existence of a morbid cause, operating from the beginning on a more extensive scale, and myriads of these ultimate cells, to suffer at once from impaired or suspended function, what formidable magnitude may not the mischief rapidly assume! Does not fever, in all its phases, present us with a striking instance of a disease which prosecutes the work of destruction on the grandest and most formidable scale? All the organic processes are involved in one common consequence: whatever its nature, or in whatever quarter it may originate, it cannot be questioned that it affects injuriously the nutrient and discerning agency of every *cell* in the body. A morbid growth, confined only to a small part, deriving its commencement from a diseased action, which some accidentally-applied cause may have entailed upon a few of the ultimate cells of the affected structure, furnishes an example of local deviations from the healthy standard which may occur in the character and office of the ultimate organs of nutrition.

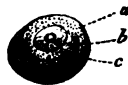
Before proceeding to the consideration of the particular  
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cases of disease which the microscope succeeds in demonstrating in these miniature organs, it is desirable to state briefly the organic laws to which they, in common with larger masses, are subjected.

A definite scale of development is assigned to the primary organic cells proper to the various structures of the body. The cells of the blood, the liver, the mucus, and other structures, therefore pass systematically through prescribed gradations of growth; and, in the natural state, the duration of their life-period is equally pre-limited and ordained. The parenchymal cells of all glandular organs demonstrably attain a given stage of evolution when the natural consequence of dehiscence occurs, by which their contents are contributed towards the general sum of the secretion. The typical elements of an organic primary cell are three only:

Fig. 1.



Primitive Cell.

a Cell-membrane.

b Nucleus.

c Nucleolus.

first, an external sac, then a smaller vesicle, which contains a third. In general physiological language, when speaking of the ultimate cells of the various structures of animals and vegetables, the first is designated the cell-membrane; the second the nucleus; and the third the nucleolus. When, however, the description is intended to apply to the *ovum*, although the several parts are identical in absolute and relative characters at this primordial stage, the first is distinguished as the *vitelline capsule*, "membrana vitelli," which contains the yolk intervening between it and the next, which is called the *germinal vesicle*, enclosing the *third*, the *germinal spot* of Purkinje. Raspail employs the terms, "chorion," "amnios," and "embryo," in allusion, respectively, to these three organic elements of the ovum. In the phanerogamic department of the vegetable kingdom, the amnial sac of the ovulum is nearly the counterpart of the *ovum*, contained in the capsule of De Graef in the ovary of the higher animals.

By the significant assistance of three small concentric lines, it is thus practicable definitively to express the profound truth, that a slender tripartite cellule is typical of the common germ from which all animal and vegetable existence proceeds. It is the universal focus of parentage to every individual within the confines of organic nature.

Primary cells propagate themselves by the reproduction of cells similar to themselves. In its pathological relations, this is a very important circumstance: for although it were at present visionary to anticipate any discovery with reference to the nature of that subtle formative agency, which, under one set of condition, obliges the primitive cell to undergo metamorphosis into bone, under another into muscle, and under others into nervous and mucus tissues, &c., it is quite philosophical to acknowledge the authority of this law within certain limits. When the malignant tendency, for example, has been once established in a part, by the organization of a *cancerous primary cell*, in virtue of this extraordinary power, which, from the beginning, inheres in the cell of multiplying its kind, the continuance of the destructive process in the part is certain and inevitable.

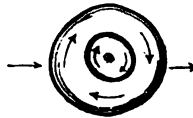
Every ultimate vesicle is so far a unity, as that it is capable of isolation from the surrounding cells, yet dependent for its nutrition upon the general circulation. The vital currents of the circulation, therefore, are channels of direct communication, by which every part and cell in the fabric are brought into relation with a common centre, and by which the compound unity of the whole body is established.

These are considerations which will be constantly involved into all subsequent pathological inquiries. Although not susceptible of positive demonstration, all analogy conducts to the inference, that *every cell* is the scene of two descriptions of circulation:—one which may not inappropriately be distinguished by the term “diasmotic<sup>1</sup>”; the other *intrinsic*, and strictly nutrient and vital. What can be demonstrated in the example of the simple cells of the chara, and

(<sup>1</sup>) Διά, “through,” ὥσμιος, “impulsion;” which signifies simply the transit of a fluid through a membranous partition, without specifically denoting whether the current enters into, or escapes from, a cavity.

many others of the *confervæ*, is also probably true in regard to the ultimate vesicles of all vegetable and animal structures. The following plan may serve to indicate the principle of this microscopic circulation.

Fig. 2.



Plan of Cell Circulation.

The nutrient fluid transudes the septum of the *cell* membrane; and either undergoes a concentric movement along its internal surface, or enters into combination with its contents—the vitelline structure—to undergo a preparatory elaboration, before fulfilling the more important office of nourishing the *germinal* vesicle and its contained part. The observations formerly made by Mr. Grainger with respect to the liquefaction of the yolk, preparatory to its absorption by the *vasa lutea*<sup>1</sup>, afford a direct confirmation to this view. It is now obvious, that one of two circumstances may produce disease in those delicate organisms, of which one may affect simply the quality of the nutrient circulating fluid, and the other may be associated with some impediment to its circulation. Under the operation of either of these causes, disease will be entailed on the cell. The labour of primary and secondary assimilation, to employ the language of Prout and Liebig, devolve exclusively upon these ultimate cellules of organic structures. By this cursory physiological analysis of the subject, the desirable service may have been rendered of imbuing the minds of those unfamiliar with microscopic study with the first principles upon which microscopic pathology must found and rest all its future pretensions.

2. It was maintained, for a long period subsequently to the writings of John Hunter and Cullen, that a disordered state of the capillary circulation, called inflammation, was

(<sup>1</sup>) Müller's *Physiology*, by Baly, p.1559: Note by Mr. Grainger and Mr. Dalrymple.

necessary, as a prelude to the occurrence of all morbid organic changes. It is sufficient here to state, that the microscope has introduced, within a comparatively recent period, important revolutions into the doctrines prevalently entertained in regard to the essential character of this process. For present purposes, all the phenomena of which the process consists may be viewed under two divisions; of which the first includes all the changes, *mechanical*, chemical, and vital, which the blood undergoes *before* its escape from the channel of the capillary vessel; the second, those organic, or rather organizing changes which the *plasma* (liquor sanguinis), the material which has transuded the parietes of the capillary vessel as a *consequence* of the antecedent condition of the blood *within* the vessels, more or less rapidly puts on. This appears to be a determinate and natural classification of the familiar phenomena constituting the sum of this singular and useful organic process. Whatever may be the attendant conditions in relation to the chemical and vital composition of the liquor sanguinis, the truth of the circumstance may be admitted, as Magendie expresses it, that "du moment qu'il existe un défaut d'harmonie entre le diamètre des capillaires et le volume des molécules sanguines, des obstructions surviennent, et *alors* apparaissent les caractères de l'inflammation<sup>2</sup>." It is scarcely necessary to contend, that there can be no direct relation between the process of organization which proceeds in the effused plasma, and the conditions affecting only the *contents* of the capillaries which led to that effusion: of course, the *quality* of the pabulum will impose a corresponding stamp upon the character of the organizing process which it is designed to maintain. This circumstance, however, it will at once be seen, does not alter the meaning of the preceding statement. Now the whole tendency of modern innovations in the fundamental doctrines of physiology countenances no other view than that which requires that the process of organization, through the inter-agency of cells, which takes place in all cases in the inflammatory product, should be regarded as essentially one of nutrition, ultimately conforming, in all its necessary conditions, with those which

(<sup>2</sup>) Lectures on the Blood.



regulate and determine the process of primary "assimilation" (structural renovation), at every moment and in every part of the body. The term "inflammation," therefore, whatever meaning it may etymologically or practically convey, is applicable only to the abnormal phenomena which are referable to the deviations from health, which happen *within* the channels of the capillary system. On this occasion it is proposed only to investigate the changes which the liquor sanguinis undergoes subsequently to its effusion upon the open inflammatory surface.

So far there is some concurrence and agreement in the results of observations, as conducted by Professor Gerber, Mr. Gulliver, and Dr. Martin Barry, that they describe the presence of corpuscles which arise in and from the semi-fluid plasma, primitively under the character of minute amorphous molecules, which enter into determinate groups and combinations, out of which corpuscles of considerable magnitude are evolved, for which the name of *exudation-corpuscle* has been proposed.

Fig. 3.



- a* Exudation-corpuscle, in process of division into pus-corpuscles.  
*b* More advanced stage: mag. 1300 diameters.



- d* Exudation-corpuscles in contact with the inflamed living surface.  
*e* Granules found in liq. sanguinis, when removed from the influence of the living surface.

These bodies, according to the views of Gerber and Gulliver, are destined, under favourable conditions, to undergo transformation into *cells*, and other organic elements of more elaborate structure than themselves; but under the opposite circumstances of disease, they are stated to resolve themselves

into *pus-globules*<sup>1</sup>. When the effusion occurs in sufficient quantity upon the free surface of an inflamed part, these peculiar corpuscles are formed in corresponding abundance, and, adhering to each other in a stratiform manner, form successive orders of superimposed layers, presenting the steps of organization in different stages of advancement.

By many observers these exudation-corpuscles are maintained to be identical with the colourless corpuscles of the blood: their identity, however, is by no means obvious. The theory of transformation proposed by Gerber is implicitly adopted by Dr. Carpenter; advocated on a much more extended scale by Dr. M. Barry; and, after submitting it to certain modifications, wrought out to further applications by Mr. Addison. It is not here presumed to impugn the general accuracy of these excellent observers; but since every endeavour to re-observe these alleged metamorphoses uniformly proves fruitless, it certainly by no means can be expected, that a servile admission of their truth should be made. Whatever may be their source, or the mechanism of their production, *pus-globules*, as defined by the superior instrument in use at this hospital, present the following physical characters:—

Fig. 4.



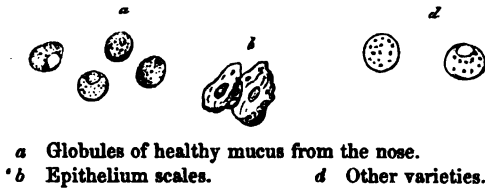
- a* Corpuscle, with single nucleus: Cell-membrane, crenated, but not mulberry-like, as shewn by Gerber, Fig. 3. *b*.
- b* The double nucleated corpuscle.
- c* Non-nucleated, smaller-sized corpuscle.

They are more or less perfectly orbicular *cells*; the *external* surface of which is studded with granules, which sometimes are so obvious as to impart a *crenated* character to the cell-capsule, for the most part furnished with a nucleus, sometimes with two nuclei: under other conditions it is altogether destitute of nucleus. Generally, the cell

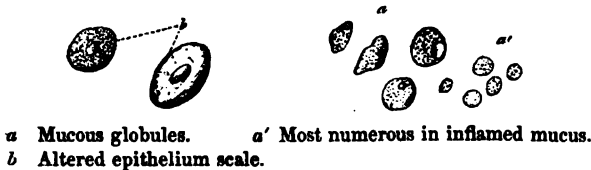
(<sup>1</sup>) I have here introduced the figures in Gerber's work, illustrative of the exudation-corpuscle in the act of resolving itself, by fissiparous multiplication, into *pus*-corpuscles. (Fig. 3.)

contains but few primitive molecules; according to the number of which, its degree of pellucidity and transparency is determined. The three varieties, here represented as the most common and prevalent modifications which the true pus-corpuscle assumes, appear, from the local and constitutional circumstances under which the peculiarities are respectively generated, to be determined essentially by differences in the organic qualities of the matrix or blastema from which they immediately spring. The uni-nuclear corpuscle, which exhibits all the indications of a definitively-organized structure, is always found in the secretion which bathes the surface of a recent healthy suppurating wound : it may indeed, in conformity with the vernacular conventionalities of surgery, be called a *laudable corpuscle*. The second variety—the binucleated—is most frequently discovered in recent phlegmoneous collections of pus in a healthy actively-produced abscess. The third form, in which the nucleus body is altogether absent, occurs in the ill-conditioned secretion of old chronic and unhealthy wounds : the cell capsule also, in this description, is very attenuated, and the contained granules few in number ; all conspiring as indications of an inferior and imperfect organization. It is evident from these facts, which so clearly tell the tale of the patient's condition—or, in more scientific language, which so explicitly express the measure of organizing power possessed by the product of the local excitement—that it would obviously harmonize with the best principles of surgery to maintain that the *double nuclei* are evidences of a high standard of organization in these varieties of corpuscles. No pupil in this school requires to be lessoned into a knowledge of the elementary truth, that the state of an ulcer is a significant and valuable exponent of the measure of organizing or healing power enjoyed by the general system. It is by the detection of such happy coincidences between the demonstrations of this splendid auxiliary (the microscope) to man's limited and myopic sense, and the results of rational and inductive experience, that its practical value and useful applications can be rendered convincing. There is a remarkable analogy between the most inferiorly-organized pus-corpuscle and the *mucous globules*.

Fig. 5.



a Globules of healthy mucus from the nose.  
 b Epithelium scales. d Other varieties.



a Mucous globules. a' Most numerous in inflamed mucus.  
 b Altered epithelium scale.

These likewise are orbicular bodies, sometimes endowed with a nucleus, and sometimes destitute of this part. In pus, as well as mucous globules, the position of the nucleus, with respect to the mathematical centre of the vitelline capsule, presents several variations: sometimes it is quite central; sometimes more or less excentric; and frequently it is observed to be adherent to the parietes of the vitelline or cell-membrane. There is no doubt that this little circumstance should be interpreted into a proof, whether normal or diseased, of organic distinction between these varieties of corpuscles. It is a remarkable and most interesting fact, that the corpuscles found in inflamed and healthy mucus, as indicated in the preceding sketches, manifest no structural, physical differences: in mucus, however, produced by an inflamed surface, they are considerably more numerous than in the healthy secretion. Without observing the homage which the fascinating plausibilities of many ingeniously-pictured theories almost constrain us to pay, may it not be safely said of the fact just expressed, that it proves that *inflammation*, especially when attacking an extended open surface, like a mucous tract, consists essentially of nothing more than a preternatural stimulus or impulse received by the affected part, under which its natural functions acquire such an unusual augmentation, that the process is typically and truly one of *vigorous nutrition*.

When an effusion of liquor sanguinis, dissolved in a large quantity of *serum*, takes place, as in pleurisy, peritonitis, and

pericarditis, a membranous *layer* of tenacious substance is deposited upon the inflamed surface, in quite a mechanical manner. This is found to consist of extremely delicate filaments, intersecting each other in every possible direction, and corresponding in every particular with the fibrils existing in any clot of fibrine.

*Fig. 6.*

*Plastic Product of Peritoneal Inflammation, a fasciculus of delicate fibrils, including numerous non-nucleated pus-corpuscles.*

- a* Detached corpuscle.      *b* Pus-globule, with central nucleus.  
*c* Pus-globule, with excentric nucleus.

The meshes of the filaments are occupied by globules of pus, which bear a very close resemblance to the corpuscles of mucus, or to the low-organized pus: this circumstance probably depends upon the dilution of the liquor sanguinis with serum. But whether so or not, these microscopic analogies between the solid organized constituents of certain varieties of pus and mucus may certainly be regarded as proofs additional to, and confirmatory of, the results originally obtained by the experiments of Dr. Babington<sup>1</sup>; and subsequently, by the observations of Dr. Golding Bird<sup>2</sup> and Dr. Rees, in reference to the ready convertibility of pus and mucus. In diameter, the corpuscles of pus exceed by about three times those of the red particles of the blood. By most physiologists, this fact is construed into an evidence of the mechanical difficulty which must oppose the escape of the corpuscle, as such, ready formed, from the interior of the capillary vessel: and since, by the recent improvements in the art of minute injection, anatomists, having acquainted themselves with the

(<sup>1</sup>) Guy's Hospital Reports, October 1837.

(<sup>2</sup>) Ibid. April 1838.

measurement and characters of nearly all the capillaries of the body, have now the means in their possession of ascertaining the relation between the volume of the red particles and pus-corpuscles, and the diameter of the capillary channel; and therefore of determining and settling the question, that it is impossible for a full-grown pus-corpuscle to *circulate* through a capillary vessel; and consequently, that it could not have thus originated in the liquor sanguinis whilst yet contained within the vessels. It is well known, that Müller long since, with his characteristic labour and originality of argument, which in the present day would be deemed supererogatory, has gravely marshalled every fact, orthodox in physiology at the period at which he wrote, in maintenance of the position that pus-corpuscles are *generated* by a process of organization in the *product* of the disordered secretion of the part;—a theory which is directly opposed to the views of those, who regard pus as a morbid *secretion* proceeding immediately, and ready elaborated, from the blood. The rapid advances, which the *cell theory* of nutrition and secretion has recently made, have rendered quite untenable the idea that elaborated pus can pre-exist in the blood. The ascertained evidence with respect to the production of pathological fluids is yet too limited to allow any generalisations; but it may be confidently stated, that the ultimate pus-corpuscle finds no corresponding element or analogue in any normal tissue or fluid in the body. In the developed state, therefore, it is unquestionably heterologous from, and alien to, all the healthy and ordinary ultimate constituents of structure. Its departure in physical characters from the cells normal and proper to the part, on which the pus-corpuscle is formed, may be due to the operation of one of two causes: either the corpuscle, *ab origine*, must be produced, constructed in its earliest germ on faulty principles, and from a matrix of morbid quality; or its first production must be in strict accordance with the natural cell-forming process of the part, but that *subsequently*, under the agency of some unhealthy influence, the development of the particle is completed on a perverted, although determinate, plan<sup>3</sup>.

(<sup>3</sup>) In a *future Report*, a further and more matured microscopic history will be given of the various pathological fluids, or morbid secretions.

Considerable labour and attention have recently been devoted to the subject of the chemical analysis of purulent fluids by the French chemists M. Darcet and M. Conte. They appear to concur in the conclusion, that these fluids contain but a very small proportion of fibrine, whilst they afford a considerable proportion of albumen. Is it not probable that this circumstance—the paucity, namely, of *organizing material* (fibrine)—may afford some explanation of the *slender* inferiorly-organized character of the pus-corpuscle?

*Cells of the Liver*<sup>1</sup>.—The liver abounds in large, well-defined, spheroidal cells, having distinctly a biliary tinge, and a considerable quantity of granular amorphous material. These are the elements which the microscope recognises, whenever a portion of the organ is torn up and examined with the higher powers. The accompanying figures are designed to exhibit the characters of these cells; which may be appropriately called the parenchymal cells of the organ, since they constitute a considerable portion of the mass of the liver, and possess distinctive characters. They present the peculiarity

Fig. 7.



*Ultimate Glandular Cells of the Liver, having a yellow tinge.*

- a Nucleus.                      b Nucleolus.                      c Adipose particles.  
d Primitive molecules-surrounding and contained in the cells.

of having in their interior, as one of their normal constituents, adipose particles, which vary remarkably in number and size.

From the unusual magnitude of these cells (varying from  $\frac{1}{1500}$ th to  $\frac{1}{500}$ th linear), which may be completely defined by the  $\frac{1}{4}$ th objective and low eye-piece, and the tenuity and trans-

(<sup>1</sup>) The following observations on the morbid anatomy of the cells of the liver were commenced and prosecuted mainly at the request of Dr. Addison; to whom a separate ward in the hospital has been appropriated, for the investigation of hepatic disease.

parency of the cell-capsule, rendering thus practicable a clear examination of their contents, the changes wrought by disease can be most satisfactorily observed. Indeed, the liver should be selected, as the organ which affords the best opportunities for the prosecution of the interesting subject relating to the *pathology* of cells. The existence of fatty particles in the interior of the hepatic cells was determined independently by Henle and Erasmus Wilson; but the credit of first demonstrating the pathological bearing of this discovery is due to Mr. Bowman<sup>2</sup>: (Medical Gazette, Jan. 1842.) In his short communication on this subject he announced the fact, that in the proportion of one-third of the total number of cases of phthisical disorganization of the lungs, the epithelium cells of the liver become gorged more or less with adipose particles. Mr. Bowman's inquiries appear not to have extended beyond the simple determination of this fact—a fact which, it may here be remarked, has been repeatedly verified at this hospital during the progress of our microscopic observations. There are, however, several interesting points, both as respects the morbid anatomy of the cell itself, and the general considerations associated with this state of fatty degeneration to which it is liable, which yet remains to be stated.

(<sup>2</sup>) It must, however, be remembered, that Mr. Bowman's claim to discovery relates only to the microscopic fact of having shewn that the accumulation of fat in this state of the organ is due to its preternatural formation *within* the hepatic cells. But as far as my acquaintance with the literature of the subject extends, it is to Dr. Addison that the Profession is indebted for materially adding to our knowledge with respect to this state of *fatty degeneration* to which the liver is liable. In a former number of Guy's Hospital Reports, he pointed out that this species of degeneration was not a constant attendant upon phthisical disorganization of the lungs;—that it could not be regarded as a *necessary* and direct consequence of the pulmonary disorganization, for it may happen when the lungs are quite healthy. He conceives that its production is associated with a scrofulous predisposition, of which the formation of tubercle is but a *local* indication, *like the fatty change in the liver*; but that the occurrence of this latter change is *facilitated, rendered more probable*, when preceded by tuberculous disorganization of the lungs. In that communication, also, Dr. Addison enumerated the diagnostic marks which, according to his experience, were the most valuable evidences on which to predicate the existence of this fatty condition of the organ.



Fig. 8.

*Hepatic Cell gorged with fat.*

- a Atrophied nucleus.                      b Adipose cells.  
c Hepatic cell arrested in its development by the undue formation of fat.

The simple condition of fatty engorgement is illustrated in the accompanying cut. It is a singular circumstance in the history of the parenchymal cell in this disease, that a fat globule, however minute, has never yet been discovered in the interior of the *nuclear cell*. It invariably occupies and thrives in the interval between the nucleus and the *outer capsule* or cell-membrane: so that its situation precisely corresponds with that cavity of the *ovum* which is occupied by the vitellus. What distant physiological analogy or correlation there may be between the fat in the hepatic cell and the vitelline, or *oil globules* in the ovum, is an interesting proposition, which may be referred to the genius of those skilled in the science of inductive philosophy: but the coincidence of anatomical position is certainly not unworthy of remark. In regard to the mechanism of the *secerning* process, of which these ultimate cells are unquestionably the seat, the circumstance relating to the situation of the fat appears to sanction the following conclusions;—that the adipose matter is either *secreted*, as a ready-elaborated proximate principle, by the vitelline or cell membrane; or that the elements of fat, unelaborated, attain in common, and mingled with other principles, the chamber of the *outer cell*, when its elements spontaneously individualise themselves, and enter into new and high combinations: that the *nuclear capsule* is either proof against the entrance of the adipose principles, or that the nucleus has not yet attained that degree of development, at which it is endued with the property of *secreting fat*. Then, if the former corollary be admitted, it must be further allowed that the outer cell-capsule possesses the power of *determining the production* of the numerous primitive molecules and the bile-coloured fluid, which its chamber contains.

During these observations, the following positions were also arrived at: that the nucleus completely disappears under the *pressure* of the increasing fatty accumulation;—that the primitive molecules, which, in the healthy condition, the hepatic cell contains in obvious quantity, undergo absorption, and disappear in proportion as the adipose particles augment in number and volume;—that with the disappearance of the primitive molecules, the *yellow tinge* or *bile-colour* of the cell also disappears. During the prosecution of these observations, the idea was suggested and sustained, by various kinds of evidence, that in these cells the *nucleus* could not be viewed as *parentally*, but rather as filially related to the vitelline capsules; that it was rather the expanding germ of a future generation of cells, than the withered remnant of one passing away; consequently, that the *nucleus* participated in no way in the secerning operation of the developed cell. Several facts will be adduced in the following account, which tend to support the validity of the preceding positions. During the progress of fatty degeneration of the liver, there is no difficulty in establishing the circumstance, that the parenchymal cells, in which considerable distention by the fat produced has occurred, can no longer retain the power of sustaining their accustomed part in the process of secretion, and that eventually they must *burst*. As these disorganizing changes—for they must be actually regarded as such—proceed, it is quite evident that a universal suspension of the secreting agency will take place; so that the last avenue for the elimination of carbon from the blood suffers fatal obstruction, and the lungs and the liver, being thus involved in the common ruinous incapacity for labour, the whole body is precipitated in the wreck, which the rapid and unrestrained accumulation of carbon in the blood must occasion. At the earlier stage of the history of this complicated succession of changes, the undue development of fat in the liver, under the gradual failure of the respiratory agency of the lungs, was obviously a protective alternative; but during the subsequent steps of their progress the remedy becomes a poison; and the struggling system, now deprived of the agency of two important organs, is soon overwhelmed by the consequences. Fat contains about 80 per cent. of carbon;

and carbonic acid contains 6 of carbon in every 22 parts. It is therefore not difficult to perceive, that when these two great channels for the removal of carbon from the system are blockaded by accumulated disease, the injurious influence of the retained carbon must be as fatal as its production is rapid. No enlightened pathologist can question the value of these considerations, with respect to the *effects* on the general system, and the pathology of tuberculous disorganization of the lungs, to which these consequent changes in the structure of the liver so obviously conduct.

Additional proofs to those hitherto adduced by microscopic physiology, tending to establish the true *glandular* agency of the hepatic nucleated cells, which appear to possess no inconsiderable physiological value, were recently brought to light in this hospital, during the examination of a person<sup>1</sup> who died of a malignant disease of the duodenal extremity of the pancreas; which exerted such forcible pressure upon the common excretory duct, that the passage of the bile into the duodenum had become almost impossible; at all events, it could only have escaped by very slow degrees, and in very small quantity. The consequences which directly resulted from this obstruction were manifest in the extreme distention of the biliary ducts and gall-bladder, which necessarily caused a considerable increase in the volume of the whole organ: the liver had lost its fragile, solid character, and had become soft, flabby, and not capable of being easily broken down by pressure. On the application of the microscope for the purpose of examining the ultimate structure, the extraordinary fact was developed, that scarcely a *single* nucleated glandular cell, in a perfect state, could be found. Different portions of the organs were carefully and repeatedly prepared, in order to remove every possibility of mistake or mis-observation: the conclusions were uniformly the same, that the true parenchymal cells of the organ were certainly *not present*. These preparations were also seen and examined

(<sup>1</sup>) For the particulars relating to the examination of this person (Anne Seymour, Lydia Ward, May 22, 1843, patient of Dr. Addison) I must direct the reader to the "Post-mortem Register" kept by Mr. King. Preparations of the liver are contained in the microscopic cabinet of the hospital, by means of which the changes described in the text may be demonstrated and authenticated.

by several excellent observers about the hospital. In each portion of the organ mounted for inspection, nothing more than minute *free* fatty particles, and equally free, floating, amorphous, granular matter, could be discovered: it was very seldom that a *whole* nucleated cell could be seen. The following cut may serve to convey a conception of the microscopic characters of these objects.

Fig. 9.



*Ultimate Structure of the Liver in Jaundice from nearly complete obstruction.*

*a* Fat particles, free.

*b* Primitive molecules, free.

There seems to be but one inference to be deduced from the indisputable facts which the microscope has elicited in this case; that, namely, in consequence of the excessive distention from retained secretion, to which the whole organ was subjected, the ultimate cells, exposed to the *arrière* force of this universal pressure, whilst the process of adding to their contents by secretion suffered no cessation, had undergone universal dehiscence. It is evident, that if a continually-acting mechanical obstacle to the *gradual* escape of their contents, or if their *progressive* and natural dehiscence be rendered impossible, the consequences of the universal rupturing of the pregnant cells must inevitably follow. But whatever may be said of the adequacy of the proposed explanation, it would be scarcely reasonable, with reference to this case, to dispute the two circumstances, that the mechanical obstruction created by the pancreatic tumor *produced* the effects in the structural elements of the liver, the details of which have now been described. The adipose particles are normal and legitimate *inmates* of the cells; and when they are observed in a liberated state, what other conclusion can be supported than that they have escaped by the mechanical dissolution of the *cell* capsule? The history of these singular facts reminds us strongly of how adroitly nature sometimes, when the science and skill of the physician are no

more than ornamental sounds, mitigates the severity of consequences which cannot be averted, by blending their occurrence with others of an opposite tendency. The extensive injury, which the liver must have sustained by this extensive and violent dehiscence of its cells, had the temporary effect of preventing further accumulation of secretion, by suppressing the stream at its origin. The fact of this dehiscence appears conclusively to prove that the secretion of the liver is really and immediately due to the agency of these nucleated cells, and that the contents of these cells consist of *bond-fide* bile.

That the *adipose* contents of these cells is destined to constitute a portion of the hepatic secretion may be regarded as fully determined by the recent analyses of bile carefully conducted by Berzelius himself. He has shewn that this secretion, as obtained from the gall-bladder, contains oleate, margarate, and stearate of soda; or, in other language, saponified fat. To complete the determination of its presence, he has further proved that the glycerine, separated from this saponified fat, is also present. In these examinations, it has been several times observed, that when the obstacle to the outflow of the secretion is only partial<sup>1</sup>, the parenchymal cells are seen as more prominent objects, exhibiting evidently the indications of an increased size from retained secretion. In these cases the *yellow colour* is most obvious. The conclusion has been invariably arrived at, that the depth of the yellow colour, which most probably is dependent upon the collection within the cells of actually elaborated bile, is proportionate to the *number* or quantity of granular matter which the *cell* contains; and is equally diffused throughout the cell, *excepting the interior of the nucleus*, which appears yellow only so far as it derives its tinge from the surrounding molecules.

In *fever*, the adipose globules almost completely disappear from the cells of the liver. In its relation to organic chemistry no trifling interest attaches to this fact.

(<sup>1</sup>) Several cases of jaundice, from biliary calculi, have been examined.

Fig 10.

*Hepatic Cells in Fever, almost entirely destitute of fat particles.*

The absorption of fat from the hepatic cells in fever may be viewed as a circumstance, in reference to its physiological relations, which depends upon conditions exactly the converse of those obtaining in cases of disorganization of the lungs. The latter organs being reduced to a state more or less completely of disuse, the liver becomes burdened by vicarious labour. In *fever*, on the contrary, from the exalted condition of the respiratory agency, the rapid circulation and highly-oxidized state of the blood, the decarbonizing function of the liver is little required. All the stagnant carbon of the body, and consequently that situated in the interior of the hepatic cells in the form of fat, submitted thus to the direct chemical agency of an immense amount of the free or unemployed oxygen with which the blood is impregnated, is pressed into rapid chemical combination, and carbonic acid and water are the products<sup>2</sup>. An equivalent of fat consists of  $\left\{ \begin{array}{l} \text{C. 11} \\ \text{H. 12} \\ \text{O.} \end{array} \right\}$ : it would

therefore require, to produce the transformations of which we speak, 30 equivalents of oxygen; 22 equivalents to convert 11 equivalents of carbon into carbonic acid; and 12 equivalents to produce water with the hydrogen. From this estimate, an approximative conception may be formed of the unnatural excitement which must pervade all the organic processes in fever. Of course, this accelerated state of the respiratory and circulating systems must be sustained by secondary and hidden *organic* changes in the structural composition of the several elements of the body. These are

(<sup>2</sup>) A similar view, in reference to the hyperoxidized state of the blood in fever, has been ingeniously supported by Mr. Coventry, Surgeon, of Clapham.—*Medical Gazette*, Aug. 26, 1842.

changes, however, which pathological science has not yet unfolded, even to the most foresighted inquirer. The preceding explanation of the conditions leading to the removal of the fatty particles from the cells of the liver, in fever, is rendered probable by the truths derived from comparative anatomy. In insects and birds the hepatic apparatus is relatively small; but this inferior size, and therefore its limited decarbonizing agency, has immediate reference to the proportionably increased development of the breathing system. In mollusca and fishes, in which the standard of respiration is low and aquatic, the reverse of these physiological dependencies prevails. This view likewise comprehends the theory, as Liebig has already shewn, on which the greater morbid liabilities of the liver in intra-tropical countries are to be explained.

There is one more fact, in connection with the morbid anatomy of the *hepatic cells*, which it seems desirable to communicate. The liver is liable to a disease which is called simply a "granular state of the organ." These granules are small bodies of the same size precisely with the lobuli of the liver, projecting in relief from the surface of the organ, as *dirty-white*, changed *lobuli*, or white scrofulous tubercles. By selecting, by means of a pointed instrument, nothing but a portion of these white bodies, their microscopic structure can be separately inspected. The whole substance of each portion examined consisted of cells of varying figure and magnitude, of which *many*, however, exhibited all the characters of the true hepatic *cell*, but differing from the latter in the *absence* of that most obvious of all its distinguishing marks, the yellow colour. In all instances in which no healthy part of the liver had been taken up with the diseased, the cells were wholly destitute of the yellow colour. The following sketch will shew the characters of these objects.

Fig. 11.



*Hepatic Cells in Granular Liver, transparent: molecules few, and destitute of the yellow tinge.*

Notwithstanding the absence of that *colour*, which is naturally imparted to the *cell* by the presence of the bile in its interior, there was no difficulty in identifying these as really altered hepatic cells: the other varieties may be still further modifications. It will be seen that the adipose particles are present; and this is a striking identifying circumstance. From the *pale* transparent state of the particle, and the small proportion of primitive molecules contained, the inference appears quite legitimate, that the condition of the ultimate cell observed in this case realizes all the physical appearances which the simple circumstance of the *suppression of bile* could induce. It further leads to the suspicion, that *originally*, in the chamber of the primitive elaborating cell, the *adipose* is produced independently of the other principles of the bile, although subsequently, in the process of elimination, they become mutually admingled. The idea of an actual suppression of an organ's function can only be entertained by reference to the remotest, the very first *link* in the complicated succession of parts, the integrity and harmony of which are presupposed in its proper execution. These cells, according to the testimony of every species of evidence yet obtained, are actually engaged in the process of secreting the bile. Disease, therefore, seated in them, mutilates the tenderest elements in the machinery of the gland, and those, too, most essential to the continuance of the secreting process.

*Morbid growths.*—There are two significations in which the term "heterology" may be used in pathological science: the first may be illustrated by a formation anatomically different from the structure in and from which it grows. When the coat of an artery, the subpleural tissue, or the dura mater undergoes ossification, the osseous product of the change is *heterologous* from the part in which it is formed. Yet, although alien to this particular spot, it is, notwithstanding, *homologous* to the structure of some *other system of organs*. In structural character, therefore, it is not *absolutely*, but only relatively heterologous. If, however, an organ, or part, become the seat of an unnatural growth, the structural characters of which are essentially and wholly *unlike every form of tissue* which is natural to the body, such a morbid pro-



duction becomes *absolutely* heterologous and heteromorphous. This definition is not sufficiently unexceptionable to justify, upon its basis, the construction of a syllogistic generalization, although the approximative proposition may be expressed, that malignant formations are all absolutely heterologous: all varieties of carcinoma are malignant, therefore they must be absolutely heterologous. In the succeeding observations, it will be presumed that the reader is familiar with the doctrines of Müller in relation to the growth and propagation of malignant disease by the multiplication of *cells*. These views are implicitly founded upon the discoveries of Schwann with reference to the anatomical and physiological history of *cells*.

A malignant growth, although heteromorphous, is not parasitical, for its vessels and nerves are continuous with, and part of, the body: viewed as a *whole*, it is not structurally independent of the general system; but if a single one of its ultimate cells be taken, it may, with undoubted accuracy, be said, with respect to it, that it was an independent and separate organism, as much so as an hydatid. The very same statement, however, may, with equal correctness, be made of *every* ultimate cell in the body; so that the whole body, in actual reality, is a vast compound fabric, like the habitation of alcyonidal polypes, the integral parts of which are made up of separate and individual existences, which are united by the bonds of common centres of sympathy and nutrition. But the *cell* of a malignant growth is distinguished by this singularity: it not only departs in microscopic figure from the normal surrounding cells, it violates also the laws of increase and multiplication, which regulate all the ultimate elements of the economy; it usurps the power of multiplying its species on a new and independent plan, a plan over which the principles of organic nutrition have no controul: so far, then, the morbid growth possesses a *physiological* independence of the body in which it is found. There is no capricious and singular irregularity in its modes of production and growth. This is established by the historical circumstance, that cancer, in all its formidable varieties, occurs under precisely the same characters in the present day as a hundred years ago. *All varieties* of carci-

noma are reducible to *three species*—the encephaloïd, the schirroïd, and the colloïd. The microscope proves that the ultimate elements of structure in these several species, in all cases, present a striking uniformity of character. Chemical analysis has repeatedly confirmed the position, that all cancerous tumors abound in albumen (Hecht). Gelatine is contained in greater proportion in schirroïd than the encephaloïd species. Fat has never yet been demonstrated as an element of carcinomatous tumors. Malignant disease is distinguished by the peculiarity, that, after artificial removal, it manifests the constant tendency to re-appear in the same part. In true malignant disease, the system exhibits proofs, in the universal disturbance of its organic processes, that its various functions are involved more deeply than *simple* local irritation and local pain could possibly occasion. There is no indefinite mysticism or vagueness about these facts. In their collective testimony, they may be regarded as a ground, on which confidently to rest the anticipation, that the time will come, when all the phenomena of malignant disease will be assembled under, and referred to, fixed and determinate laws; and it is by the assistance of the microscope that this great object is mainly to be accomplished. The opportunities hitherto afforded at this hospital of examining malignant disease by means of the microscope have been limited: as formerly stated, therefore, the present article is designed only as the introduction to future and more matured and repeated observations. In his valuable monograph on morbid growths, Müller's merit appears in the capacity of a simple descriptive microscopist. He has not opened to view one really new position in regard to their essential organic relations—*why* and *how* a malignant growth is originally formed. Hypotheses are the beacons of discovery. They should be regarded as theorems resting on doubtful conditions: they thus become objects of direct consideration to the mind, and all the force of its concentrated attention is devoted to their establishment or refutation. This exertion must redound to the advantage, if not to the extension, of science. There are two plain and intelligible propositions to be enunciated, in introducing ourselves to the study of this difficult subject.

When a malignant disease commences in a part, the *cell* which is its germ may originally be physically the same as those of the cells of the healthy structures around; but, that, in consequence of a perversion of growth, its development may become arrested at a particular stage, or it may assume, *in the progress of growth*, a permanently new and heteromorphous figure. This form of cell, immediately assuming the character of permanency, may rapidly multiply, and transmit its type to all succeeding generations of cells produced by the diseased part, the accumulated sum of which constitutes the morbid growth. The second position requires that the changes tending to the production of the morbid growth should commence at a state of more refined remoteness: it supposes that the *material*—the blastema, or perhaps, in plainer terms, the *liquor sanguinis*—being vitiated in *quality*, in virtue of the *cachexia cancerosa*, the *cell* is faulty, *ab origine*, formed upon an abnormal plan from the earliest beginning; and not, therefore, a monstrosity of the natural *cell*, but an absolutely new and superadded organism.

It is not difficult to perceive that this question, as thus presented, abounds in *nugæ difficiles* numerous enough to gratify the most ardent admirer of hypothetic and erudite enigmas. When, however, they are soberly viewed, as so many *heads* under which to range all the facts and phenomena relating to this profound and important subject, they at once acquire the character of usefulness.

Professor Owen has recently advocated the theory, that an acephalocyst or hydatid "should be truly designated as a gigantic organic cell, and not as a species of animal, even of the simplest kind:" this view he founds upon the circumstance, that "the knowledge we now possess of the primitive embryonic forms of all animals, and of all animal tissues, places us in the position to take a true view of the nature of the acephalocyst<sup>1</sup>."

An acephalocyst consists of a sub-globular oval vesicle, filled with fluid, exhibiting a few pellucid points on its external

(<sup>1</sup>) Hunterian Lectures on the Comparative Anatomy and Physiology of Invertebrate Animals, 1843.

Fig. 12.

*Acephalocyst (after OWEN).*

- a* The containing cavity of condensed tissue.  
*b b* Acephalocysts.      *c* Germs of future cysts.

surface, which Professor Owen, from their analogy to the "hyaline" of Dr. M. Barry, believes to be the germs of *new cells*; but which Dr. Hodgkin<sup>2</sup> considers as points of morbid products. An acephalocyst is filled with fluid; and has no *nucleus*, or the remains of one, like the cell of the protococcus, to which Professor Owen compares it: it however bears this resemblance to these low orders of cryptogamia, that the adult cells among these vegetables produce sometimes embryo cysts from their external surface. Young hydatids do not always escape externally: they are frequently detached into the interior of the primary vesicle in the capsule of which their germs originated; constituting thus the variety which John Hunter called the pill-box hydatid, and Kuhn and Cruvelhier the acephalocystis endogena. These hydatids have the power of rapidly reproducing their kind, and, in fact, realise all the particulars given in the definition of malignancy; yet surgeons maintain the doctrine, that hydatid testicle is not malignant, but only incurable. It must be admitted, with Professor Owen, that there is a remarkable similarity between the larger cells of cryptogamic plants and the vesicle of an acephalocyst; but the question is, where is the *proof* that an hydatid is a gigantic organic cell? The cell-capsule of an hydatid may consist and be formed of many nucleated cells. Professor Owen does not state that the

(<sup>2</sup>) Lectures on Morbid Anatomy, 1836, vol. I. p. 189.

hyaline points, which he describes as the embryo of future hydatids, really are simple cells—a circumstance which should be proved, in order to give strength to the resemblance which he points out; or we might as plausibly assert that the urinary bladder was only a gigantic organic cell, because it happens to be a hollow viscus containing fluid. Before proceeding further into the consideration of this subject, it becomes desirable to ascertain what are the real characters of a malignant cell, and the varieties which it is capable of assuming. A little familiarity with the microscopic history of the several varieties of carcinoma would be enough to satisfy any observer that the cells of all the soft or encephaloid varieties approach more or less obviously to the spindle-shaped and oval, of which the caudate and orbicular are the

Fig. 13.



*Cells characteristic of the Encephaloid Species of Carcinoma.*

*a b c d* Varieties depending partly upon the age of the cell, and partly upon differences of anatomical structure in the varieties of the same encephaloid species. All partake more or less of the spindle-shaped and caudate figure: *a b c* may be viewed as the embryonic stage of *d*, the development of which may be arrested at the stage *a*, or may be extended until the cell attains the stage *d* (some of these are copied from Müller).

two extremes of modifications. All the encephaloid varieties of cancer, or medullary growths, when examined with the microscope, are found to present three principal varieties of

cells, differences in the relative proportions of which occasion the varieties of form and general character which the species of carcinoma assumes.

The first variety, as established principally by the observations of Müller, has *cells* of a round and slightly elongated figure, which contain very minute nuclei and granules (fig. 13 *a*): in addition to which, tender transparent fibrils intersect these tumors. This variety is always distinguished by the rapidity of its formation, and its soft, brain-like consistence: examples of it are afforded in struma fungosa testis, medullary sarcoma, and fungus hæmatodes.

The next variety of encephaloïd disease is marked by pale elliptical cells, with a slight tendency to a tail-like or caudate prolongation (fig. 13 *b*). According to Müller, this is a very rare variety: the corpuscles are destitute of nuclei. The third variety is characterized by the spindle-shaped or caudate corpuscles (fig. 13 *d*): these tumors are always more dense and fibrous than the former. The linear aggregation of these elongated cells would, if compactly disposed, evidently produce fibrous bands. In some instances, therefore, the *filaments*, as well as the cells, must be regarded as truly malignant. In the same specimen it is not unfrequently found that all the varieties of ultimate cells shewn in fig. 13 are present. From this circumstance, it appears quite legitimate to conclude that this series essentially belongs to one and the same order of cells, and that the apparent dissimilarities manifested by the several individuals depend upon differences simply of age. In process of development, *a* probably becomes *b*, and this subsequently assumes the more matured characters of *c*, until, ultimately, the adult characters represented at *d* would result. Now, let the supposition be hypothetically entertained, that *a*, the first and youngest of these varieties, after having vigorously attained the stage of childhood, were suddenly to sustain an arrest or check of growth, but, notwithstanding its dwarfish and diminutive proportions, it were still to enjoy the power of reproduction — of reproducing, *too, its kind*, although it may be the *dwarf* only of a larger species; — is it not evident, that a tumor made up of such cells would be distinguished by mechanical and anatomical characters extremely unlike another whose component cells were long,

spindle-shaped, or caudate and bicaudate, admitting thus of more compact aggregation than the weakly-organized circular variety?—and can it be affirmed that the history of development affords no grounds, no principles, on which to advocate the tenability of such views? Although, on a more palpable scale, the principle of development is in no particular different from that which checks the prescribed evolution of the palate or the lip—from that which operates on the insignificance of an ultimate cell, and forbids the progress of its destined growth. Let the examination, however, be extended to other species of malignant formation.

*Fig. 14.*

*Cells characteristic of the Schirroid Species of Carcinoma.*

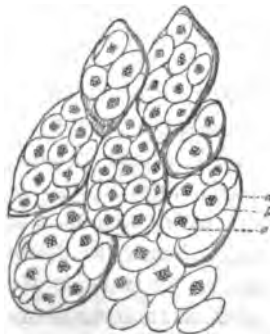
Shewing the circular—round—to be the prevailing figure, generally provided with a well-marked nucleus. Sometimes this is double, sometimes absent, the cells assuming a transparent pellucid character.

-In the schirroid varieties of carcinoma, the prevailing or predominant figures in the ultimate cell are the orbicular and circular. In all the sub-varieties, the cells are more or less completely reducible to this conformation: the stone-like density of schirrus is due to the fibrous stroma, in the meshes of which the true cancerous cells are contained. These intersecting stromatous fibres, according to the opinion of the best authors, cannot be considered a part of the malignant growth: they contend that they consist of the proper structures of the part, thickened, tightened, and otherwise altered by the local agency of disease.

The cells of schirrous carcinoma are furnished, for the most part, with nuclei and nucleoli. It should never be

forgotten, that the presence or absence of a nucleus, or even difference in its *size* and *position*, constitute real and organic dissimilarities between individual cells. It may be observed, from the varieties of cells here shewn, that in one, *a*, the nucleus is small, pellucid, and indistinct; the cell altogether being large, and enclosing *few* primitive molecules: in another, *b*, the cell is smaller, and the nucleus larger. Sometimes, too, an orbicular group of primitive molecules, *destitute* of an enclosing *capsule*, are observed: on other occasions the *cells* are endowed with a double nucleus, and present all the indications of a high standard of organization. It is a singular circumstance in the history of *schirrus*, that it occurs solitarily—confined, that is, to one locality: it is slow in its growth, and rarely attains a very large size. The pancreatic sarcoma of Abernethy, the carcinoma reticulare of Müller, the chondroid cancer of Recamier, are examples of varieties which belong to the species *schirrus*. *Colloid carcinoma* constitutes a distinct species, and presents an organization more characteristic and distinctive than any of the preceding<sup>1</sup>. It consists of a gelatiniform mass, the structure of which is composed of several orders of definitely-disposed cells, thus:

Fig. 15.



Plan of Cells in Colloid Carcinoma.

*a* Primary order of cells.    *b* Secondary.    *c* Tertiary (after Müller).

(<sup>1</sup>) No examination of this species has recently taken place in this hospital. The account in the text is given on the authority of Müller.



Fig. 16.



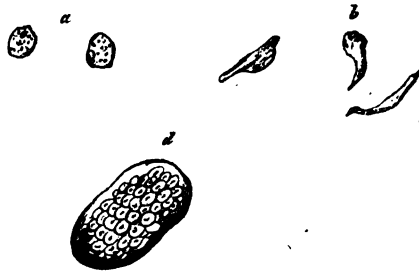
*Carcinoma Tuberosa of the Liver, magnified  
170 diameters,  
shewing simple orbicular, nucleated, and  
rapidly-multiplying cells.*

*Mucedinous fungus.*

The primary order of cells, fig. 15 *a*, appear under the character of capacious areolæ, enclosing a secondary series, *b*: and, finally, a third system appears as granular nuclei to the second, *c*.

This species manifests a remarkable preference for the muscular structure of the stomach: the characteristic cells are generated at a very early stage, and are less visible at the more advanced.

Fig. 16. is a sketch of the remarkably uniform *orbicular*, nucleated cells, which almost exclusively compose the substance of malignant tubercles of the liver—*carcinoma tuberosa* of Dr. Farre. It is an important fact in the history of these tubercles, that they implicate very little the proper glandular structure of the liver: healthy hepatic tissue may immediately surround the malignant growth: the tubercles arise in different portions of the organ, from independent centres of growth; and the cells proceed rapidly on the work of multiplication. These observations were made upon a case which some time since occurred in this hospital. The cells are as uniform and regular as those of the colloïd species of cancer. In encephaloïd disease of the *ovarium*, as it was lately shewn in our observations, a species of compound cell may be found which bears no distinct analogy in plan to those of colloïd cancer. It consists of a large oval capsule, measuring  $\frac{1}{765}$  of an inch in its long diameter; and distended with small orbicular nucleated cellules, measuring about  $\frac{1}{3000}$  linear. In addition to which, however, this ovarian tumor abounded in the characteristic encephaloïd caudate cells. The very counterpart of this compound cell was also discovered here, lately, in the yellowish deposit or transformation which is found in the cortical segment of the *kidney* at the more-

Fig. 16<sup>A</sup>.

Cells found in very large and old malignant disease of the Ovary (*Encephaloid*).

a Pus-globules.

b Caudate cells, frequent in encephaloid varieties of carcinoma.

advanced stage of albuminous disorganization of the organ. There is a true malignant stamp in the aspect of these compound cells, although little is yet known of their natural history.

A specimen of *epulis*, and another of semi-ossified tumor attached to the inferior maxilla, were recently examined by the microscope, at the request of Mr. Key. The examinations led to extremely instructive distinctions between the microscopic structure of those growths which are truly malignant—that is, those local growths, which, during their progress, radically and organically involve all the component systems of the body; and those tumors, which are simply heterologous, which acquire, however, the undue power of implicating the surrounding structures. The ossified tumor was composed of cells which throw important light upon the process of ossification. Numerous cells of this description were found,

Fig. 17.



a Ossified cell.

b Secondary sacculi.

c Same cell acted upon by dilute hydrochloric acid.

d Fibres of the fibrous portion of tumor interspersed: free calcareous points.

in which smaller solid masses of calcareous matter were clearly made out: by the action of dilute hydrochloric acid, effervescence occurred, and the masses in great part disappeared. On subsequently treating the preparation with acetic acid, it was distinctly observed that the masses of calcareous matter were contained in membranous *sacculi* within the larger cell. This is a very near approach to the plan on which the *gritty* matter in the *pineal gland* is organized, as recently determined at this hospital. The effervescence which, under the agency of hydrochloric acid, occurs, indicates that the masses are principally composed of carbonate, and not phosphate of lime. To Mr. Dalrymple the merit belongs of first proving that ossification may take place by the collection of sclerous material within the sac of a *nucleated cell*; but Mr. Dalrymple has made no allusion to the membranous sub-celluli in which the osseous deposit is contained<sup>1</sup>. Properly speaking, however, it is not ossification; for the deposit chemically differs from the hard portions of true bone. It should therefore be designated simply as an abnormal secretion of carbonate of lime; just as urate of soda, in rheumatic diatheses, is secreted in the neighbourhood of joints<sup>2</sup>. These cases of morbid growth, whose heterologous character is simply local, are those which, if once completely removed by surgical operation, never exhibit a disposition to re-appear.

As the limits allotted to this article are already transgressed, the points desired to be inculcated, with reference to the question of malignancy, may be briefly expressed in conclusion.

That as science advances, the probability becomes correspondingly stronger, that general laws will be developed on which to account for the production and unmanageable progress of malignant disease.

That the facts and principles, which modern physiology has already unfolded, warrant the inference that *malignancy* is originally synonymous with a local perversion of nutrition;

(<sup>1</sup>) Mr. Dalrymple, however, does not appear to be aware of the fact, that true *organic*, as well as calcareous molecules, are removed by dilute hydrochloric acid from the interior of nucleated cells.

(<sup>2</sup>) All the further details and sketches relating to these observations may be found in the "Record of Microscopic Observations" kept at the hospital.

but that, under a continuance of the process, a *re-action* of its influence upon the general system occurs; after which all hopes of recovery, from surgical removal of the part, are blighted.

That the *mechanism* of growth in cancer differs in no particular from that of *normal* nutrition; but that the organic *elements* at work in the two cases are dissimilar.

That the *cells* of malignant growths are only monstrosities of the normal cells, produced by a *perversion* of the *moulding* agency during the process of growth.

That the *degree* of malignancy is proportionate to the simplicity and uniformity manifested by the ultimate elements of the tumor: that on this, the encephaloid species of carcinoma exhibit proofs of lower standard of organization than the scirrroid—of being *less* under the controlling agency of the general system.

CASE OF EXTIRPATION  
OF THE  
**SUPERIOR MAXILLARY BONE,**

PERFORMED BY  
**WILLIAM WILLIAMS, ESQ.**  
OF DOLGELLY;  
AND REPORTED BY HIM.

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**OWEN OWENS**, aged 24: a labourer, short and stout, with light complexion and red hair: had always enjoyed good health. In the autumn of 1839, about two years previous to the performance of the operation, he first began to suffer from severe tooth-ache, and subsequently complained of a disagreeable bitter taste in his mouth, accompanied by an offensive smell. These symptoms continued for about a year, when he discovered a tumor on the left cheek, about the size of a nut. The offending tooth was then extracted: his gums were afterwards scarified, and applications used to the tumor, which, however, continued to increase in size. He then placed himself under the care of a quack, or *wild-wart doctor*, who cut off pieces of the gums and palate with a pair of scissors, and used certain applications. He appears to have lost a good deal of blood, and had two more teeth extracted from the upper jaw. I was then consulted on the case, and found that the tumor on the left cheek had attained the size of a small orange: the palate presented an unhealthy ulceration with everted edges, by the side of which was a small soft swelling of a fungoid character. I recommended the immediate removal of the disease; but his relatives dissuaded him from submitting to an operation; and he was handed over to the care of a woman in Denbighshire, a *wild-wart doctress*. He remained three months under the care of the lady, who covered the external tumor with a mixture of clay and french-brandy, while she applied a strong escharotic fluid (probably mineral acid) to the gums and palate. He

suffered excruciating pain for several hours after each administration of the latter remedy; and portions of the gum and palate sloughed away, by which a diminution of the disease was effected internally, while the swelling of the cheek continued to enlarge. He relinquished his attendance for some weeks; and then again returned to his doctress, and stayed with her for a month; when, despairing of success, he finally quitted her, receiving a strict injunction not to allow any one to cut him, as he would assuredly die under the operation. At this time his health does not appear to have been materially affected, as he returned to his labour, and continued to work during the hay-harvest; but the gradual development of the tumor was now accompanied with dull heavy pain in the head, and impaired vision on the left side. When he again sought my advice, I found the tumor had considerably increased in size, and the skin on its summit was red: the nose was turned to the right side by its pressure, and the left nostril completely obstructed: it had also encroached on the orbit, so as to cause a considerable protrusion of the eye-ball. The palate presented a large ulceration, with everted edges; behind which, close to the last molar tooth, was a soft fluctuating swelling: this was punctured, and bled so profusely, that it was with considerable difficulty the hæmorrhage was arrested. He now consented to the removal of the diseased mass, and the operation was performed on the 16th of Sept. 1841. I was assisted by Mr. Robert Jones of Caernarvon, and my brother, Mr. Rowland Williams, of Tremadoc.

The patient was placed on a chair, his head supported and kept steady. An incision was made from the inner angle of the eye straight downwards to the mouth, cutting through the upper lip about midway between the centre and the commissure. A second incision was then commenced from the centre of the zygoma, and carried down to the angle of the mouth, clearing the parotid duct, the integrity of which was preserved: the facial artery bled profusely, and was tied. The flap was now turned upwards, and dissected away from the tumor and the maxillary bone, until the lower margin of the orbit was exposed; after dividing the infra-orbiter artery and nerve, which produced such acute pain, that he fainted, and the operation was suspended until he rallied.

Some difficulty was experienced in clearing the edge of the orbit, and in passing the handle of the scalpel between the floor and the eye-ball, as the former had been raised and rendered convex by the pressure of the tumor from below. The buccinator, the masseter, and the temporal fascia were then separated from the superior maxillary and malar bones; while the cartilages of the nose were also detached on the inner side. It now only remained to cut through the connections of the superior maxillary bone; and this was effected with a pair of powerful-bladed forceps. The palatine plate was first divided close to the septum; the zygoma was then cut through; and afterwards the orbiter plate of the malar bone, into the spheno-maxillary fissure. One blade of the forceps was then introduced into the nose, and the other carried along the inner wall of the orbit, by which a division was effected through the nasal, lachrymal, and ethmoid bones, until it reached the spheno-maxillary fissure. The tumor was then firmly grasped by a pair of forceps, and drawn downwards and forwards: it became loosened from its remaining attachments; and after dividing some fibres, which I conceived belonged to the maxillary vessels and nerves in the spheno-maxillary fossa, the whole mass was brought away. Not more than a pint of blood was lost during the operation, which, together with the dressing, lasted nearly an hour. The parts were brought together with platinum-wire sutures; the cheek was supported internally by dossels of lint, and a bread-and-water poultice applied externally. He was put to bed, and in about three hours vomited some blood which he had previously swallowed.

No untoward symptoms supervened to retard his recovery. The wound healed rapidly; and in a few weeks he returned to his work in perfect health.

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The following particulars were communicated by Mr. Williams in July 1843, in answer to inquiries respecting the result of the foregoing case. It is difficult to reconcile the alleged restoration of motion and sensation with the fact that the facial and infra-orbital nerves were necessarily divided during the operation.—EDITORS.

"The man is in perfect health, and does not present the slightest symptom indicating a return of the disease.

"The eye is somewhat everted; but the motion of the globe is not at all impaired or altered.

"The vision of the left eye improved after the operation, when the globe was relieved from the pressure which it had sustained from the tumor. The sight, however, is still inferior to that of the other eye, especially as regards distant objects; and becomes worse towards night.

"He has complete power over the muscles on the left side of the face, and sensation is perfect."

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The following statement of the nature and probable origin of the tumor has been furnished by Mr. Hilton: (Vide Plate.)

"I have examined the upper jaw, removed during life by Mr. Williams; but in consequence of the long immersion in spirit of wine, and its lacerated or broken-up condition during its removal, or subsequently, little can be said with certainty as to its pathological character. The whole of the disease has been removed, as evidenced by the healthy state of the surface of separation. I cannot discover positively any isolated origin or source of growth from any one part; but I think it commenced within the antrum, either from its floor or its anterior wall: it has implicated the hard palate, and the inferior turbinated bone; and, by its expansion or growth, has displaced the floor of the orbit, the malar, and nasal bone, leaving them and the alveolar processes of the incisores teeth structurally unimplicated.

"The surface of a section of the diseased growth presents a fibro-cartilaginous and bony structure, interspersed here and there with a spongy texture, not apparently very vascular.

"I do not observe any evidence of a malignant cystiform character; and if it be a fungoid disease, I apprehend it has not been of a very active kind, nor of very rapid growth.

"*July 1843.*"

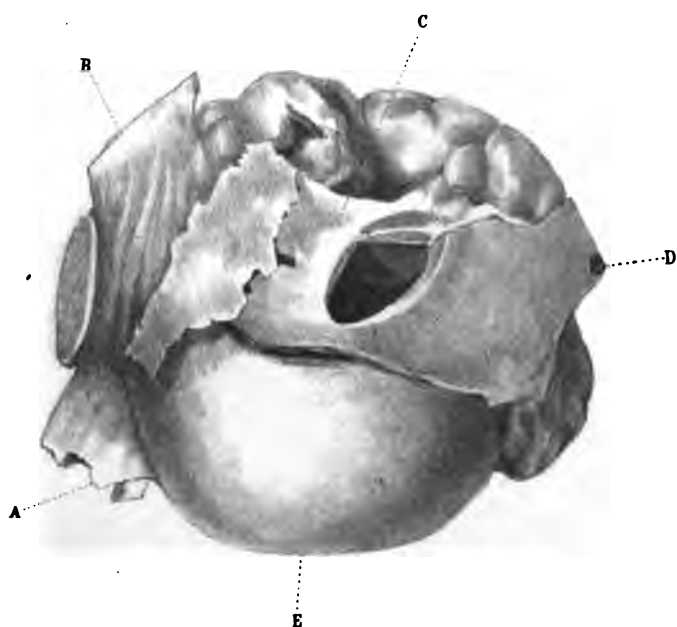
"JOHN HILTON."



**DESCRIPTION OF PLATE.**

**THE PLATE PRESENTS AN ANTERIOR AND SUPERIOR VIEW OF THE PARTS  
REMOVED BY MR. WILLIAMS.**

- a.* Alveolar process of incisor teeth.
- b.* Nasal bone.
- c.* Floor of the orbit.
- d.* Malar bone.
- e.* Tumor.





ON A  
FÆCULENT DISCHARGE AT THE UMBILICUS,  
FROM  
COMMUNICATION WITH THE DIVERTICULUM ILEI.

BY T. W. KING.

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THOSE who have had much experience in the diseases of children are aware, perhaps, that it sometimes happens, though very rarely, that a fæculent or a urinary discharge attends the separation of the funis from the new-born infant's abdomen. Some delay in the cicatrization of the umbilicus is not very uncommon. The discharge, whether urinary or fæcal, usually declines and disappears, unless connected with some unusual and serious organic derangement.

It would seem, also, that the umbilical blood-vessels may remain open for a time after birth; and little repeated losses of blood, induced by the movements of the infant, may then very well account for additional feebleness in the reparative powers.

I am not aware of any other explanation of the escape of fæces at the umbilicus than that expressed in the title of this notice; nor am I aware of any previous anatomical description of the circumstance.

Various cases of irregular and abrupt termination of the bowels may be met with in imperfect fœtuses; and one point of interest in the subjoined pathological account is, that the appearance also depends on a disturbed process of development.

The umbilical vesicle of the human embryo, though very early obliterated, seems analogous to the erythroïd membrane, or vascular sac, of the fœtal carnivora, and to the yolk-sac of the chick in ovo; which last, being the most persistent, is therefore the most readily investigated. Here omphalo-mesenteric blood-vessels communicate between the yolk-sac and mesentery; and there is also a trace of a tube, on the plan of a diverticulum, opening into the intestine.

There is no reason to conclude that the umbilical vesicle is not as essential in the first days of the human fœtus as the yolk-sac throughout incubation. Long after the fœtus in utero has established a new source of nutrition and respiration by the placenta, a cord remains, the seeming vestige of a canal from the fading sac (at the end of the funis, between the amnion and chorion) to the parts within the abdomen..

This canal is described by Meckel and others as the starting-point for the development of the bowels both upwards and downwards; and there is good reason to conclude that its site is that of the intestinal connection with the common diverticulum ilei, between ten and twenty inches from the cæcum on the convexity of the ileum\*.

In the Guy's Museum we have thirteen specimens of diverticulum ilei; and there are three in that of St. Thomas's Hospital. The organization and function of these tubes seem closely to resemble those of the bowels. Their three tunics, vessels, and nerves, seem perfect. As to the development of glands and capillaries, and as to the size of these tubes, there must be gradations. They are mostly about three inches in length, but sometimes ten or fifteen; and their calibre and parietes are generally about equal to those of the ileum, whether in childhood or adult age. The termination, or *cul-de-sac*, is generally free, and mostly rounded.

I see no more difficulty in explaining the liberation of the diverticular tube from the umbilicus, in the age of active changes and free development, than in the simple atrophy and division of adventitious adhesive cords which we see daily taking place in the adult. One part wastes through disuse; while another, as the tube, grows through being constantly employed as bowel.

Sometimes the end of the pouch presents two or several prominences, the effect of unequal distribution of the muscular fibres.

The main vessels of the diverticulum tend to confine one of its sides; and even form a more or less considerable mesentery, such as that of the appendix cæci.

\* Whatever uncertainty may be attached to the opinions above stated, I make no doubt that the frequency of a diverticulum, and all its variations, are referrible to a specific foetal organ of digestion.

In two or three specimens at Guy's, the diverticulum is short, and much confined to the common mesentery: in another it is much expanded, and thickened together with the ileum generally, from chronic obstruction lower in the bowels. In a dissection at St. Thomas's Hospital, of a subject affected with phthisis and ulcerated bowels, Mr. Adams found an ulcer in the diverticulum.

Dr. Hodgkin (see his elaborate work on the Pathology of the Mucous Membranes, Lecture xiii. &c.), who has dwelt on the origin of these diverticula, describes one of the preparations of our Museum, the termination of which is conical, and connected by a strong cord to the neighbourhood of the umbilicus; but he seems averse to the explanation of it which I have adopted, and which the following cases seem to substantiate.

It will be evident enough, from these views, if just, that a clear and decisive practical inference must arise spontaneously—viz. to obviate excoriation, to suppress discharge, to repress undue granulation, or to invigorate the frame, especially if wasted by loss from the bowels—seem to be the simple desiderata of treatment. Spontaneous cicatrization concludes the case; although, with neglect, the fistula may remain even to adult life. We should remember, that the cure depends on cicatrization of the aperture, and the avoiding cicatrization between the skin and mucous tube. Peristaltic action brings food along the diverticulum; and when the end of this tube is a little distended, the like action will just as easily and certainly return the pulpy matter. This explains the free and continued growth of the tube up to manhood, and also how it happens that nothing is delayed and accumulated in the diverticulum. We see inverted peristaltic action in the œsophagus of ruminants, in the stomach of some carnivorous animals and birds to reject bone &c., and also in obstructed bowels; and we know nothing of any but a mere physical cause—certainly nothing of any specific organic adaptations, whether nervous or other—producing such action.

If it should be suggested that the following case may not be of the kind we are speaking of, I would reply, that in that case we have still more reason to attach consequence to the distinction of cases.

## CASE 1.

*Umbilical Fistula.*

Reported by Mr. FORSTER.

JOHN CASHMAN, aged 14 months, was admitted into Mary's Ward, No. 2, under Mr. Key, on the 5th of Oct. 1842. Ever since the funis came off, on the eleventh day after birth, he is stated to have had a discharge from the umbilicus, of a thin yellow colour, and of a faint odour. A poultice was employed for three months, and caustic was applied to destroy the surface, the edges of the wound being pared to cause adhesion, and pieces of strapping applied to bring the parts into apposition.

The aperture of the umbilicus communicated internally with a deep sinus (a probe could be passed to the depth of two inches): there was, at the time, no doubt that it communicated with the small intestines.

The bowels having been very costive, and the part being inflamed, a purgative was administered.

*Oct. 8.* Some chloride of zinc, made into a paste, was introduced into the sinus, on the end of a probe. Rather more discharge succeeded, not at all of a stercoraceous, but more of a purulent character.

14. The chloride of zinc was again applied.

17. Since the last application, there has been no discharge.

18. Copious discharges again, of a yellow colour.

19. Very much inflamed, and increased discharge.

22. Discharge more like natural faeces.

29. An incision of an ovoid shape was made around the opening at the umbilicus, and the fresh-incised parts brought together by means of three pins and straps of plaster: a very small quantity of blood was lost.

*Nov. 1.* The pins were removed, and plaster and a bandage applied around the abdomen.

5. The plaster removed, and some India-rubber sticking-plaster applied: two small places only remain ununited.

9. Very slight purulent discharge: wound healing fast.

On the 14th, he was presented cured.

It is scarcely necessary to add, that a mere cutaneous cicatrization may be very insecure; and for this reason it becomes necessary, either to destroy the mucous lining of the

tube to the depth of about a quarter of an inch, to make a rather ample surface for granulation, or to secure broad surfaces for adhesion, by incision. The state of vigorous health which is essential for reparation, or the absence of it, is not to be disregarded.

For the following case I am indebted to Messrs. G. N. Parsons and G. J. Gunthorpe, of Wincanton in Somersetshire, who also sent me the specimen—No. 1819<sup>63</sup>.

CASE 2.

In March 1841, Mrs. L—— was delivered of a fine healthy male infant. At the expiration of eight days I was called upon to examine the child, in consequence of a fungus occupying the umbilicus, and supposed to have been produced by the nurse pulling at the remains of the funis; and which I also understood she had cut off close, owing to its resisting her efforts to remove it. This fungus was removed in the course of a few days, by caustic. The liquid contents of the alimentary canal then commenced oozing through an opening at the umbilicus: by degrees, the discharge increased, being of various hues, attended by great emaciation. An attack of bronchitis then supervened; and a portion of intestine, often four inches in length, protruded during the fits of coughing, and its contents might be seen passing through the open extremity. Evacuation by the rectum occurred daily. After various plans of treatment, cicatrization was produced in June 1842; and the child was lost sight of till the early part of May 1843, when thoracic disease became manifest, and eventually destroyed the patient.

Upon examining the abdomen, about a foot and a half from the cæcum, a diverticulum, nearly five inches long, extended from the convexity of the ileum to the umbilicus, to which the extremity was firmly attached. (See Plate, Fig 2.)

The umbilicus without appeared pretty natural, excepting a little central spot of granulation as wide as a pea.

Since printing the above, the final confirmation of the case of Cashman has unexpectedly presented itself\*. The little

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\* The parts were dissected by Mr. Allwork of Maidstone, and sent to Mr. Ray for the Museum.—The No. will be 1819<sup>63</sup>.



subject of it appeared to be carried off by internal obstruction and inflammation. A diverticulum, about three inches long, was found adhering to the umbilicus; and an adventitious cord appears to have compressed the ileum, just below its connection with the diverticulum.

*Fig. 4* represents another specimen, in which obstruction appears to have been fatal in a similar manner.

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#### DESCRIPTION OF PLATE

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##### SPECIMENS OF UNUSUAL FORMS OF DIVERTICULA ILEI, IN GUY'S MUSEUM.

*Fig. 1.* Diverticulum Ilei which is short and adhering to the mesentery, possessing only a partial tunic of peritoneum.—(See Prep. 1819<sup>20</sup>).

*Fig. 2.* Diverticulum Ilei, the extremity of which is lobulated.—(See Prep. 1818).

*Fig. 3.* Diverticulum Ilei adhering to the umbilicus internally after the escape of fæces had ceased. Case of Mr. Gunthorpe's—(See Prep. 1819<sup>62</sup>).

*Fig. 4.* Diverticulum Ilei, with an adventitious adhesion which was the cause of obstruction, dilatation, and hypertrophy of these parts.—(See Prep. 1819<sup>50</sup>).

Fig. 2.



Fig. 3.



Fig. 1.



Fig. 4.



W. Hurst del et lith

M & N. Hanhart lit



ON THE EXTIRPATION  
OF  
OVARIAN CYSTS.

BY C. ASTON KEY.

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THE propriety of attempting to remove ovarian cysts by incision of the abdominal parietes, after having been for a long time discussed in theory, and tried in practice with varied degrees of success, has been at length established, at least to the satisfaction of many members of the profession. Were it universally admitted to be, as I believe it is, an operation simple in its performance, unattended by more than the usual risk of surgical operations, and called for by the hitherto intractable nature of ovarian disease, I should have abstained from making any comment upon the subject; more especially as my own experience has but one case to offer, and that an unsuccessful one so far as the life of the individual is concerned. But there is still a large number of surgeons who cannot yet be brought to contemplate any one of the three positions as true; but consider the disease as hardly warranting an operation of such apparent danger, the appalling magnitude of the excision to the abdominal cavity as almost necessarily fatal, and the performance of the operation a matter of no ordinary difficulty. To such I address the following observations, in the hope that they may assist in dispelling the prejudices or the doubts that may be naturally entertained on this branch of abdominal surgery. I am free to confess that my mind partook largely of these feelings, and that it was long before I could bring myself to regard the extirpation of an ovarian cyst as any thing more than a successful accident.

Is ovarian dropsy a disease so difficult to treat, so uniformly fatal, or attended with so much suffering, as to justify excision of the cyst, with its dangers? No one, I apprehend, will dissent from the admission, that medicine and surgery had been equally

unsuccessful in suggesting a remedy, or, indeed, even a palliative for this disease. Medicines of all classes had been tried, to induce absorption, or to stay the secretion, and without any, even the least, diminution of the tumor, or any apparent power of checking its progress. The surgical means proposed, and on some few occasions acted upon, have almost in every case rather accelerated than retarded the fatal termination of the disease; and experience has shewn injection of the cyst, or any other mode of inducing inflammation of its inner surface, to be more hazardous than extirpation itself.

Still it may be thought that the disease, though cumbersome to the patient, and unsightly, is often innocuous, causing but little pain, and admitting of relief by the occasional use of the trochar; and, therefore, that so hazardous an operation is hardly justifiable. Do we admit the same reasoning on calculus in the bladder? In more than one point the ovarian cyst and calculus in the bladder bear a tolerably close analogy. They both unfit a person for the active duties and for the enjoyments of life: though but little painful in the early stage of the disease, they are attended with severe and continued suffering towards the latter stages: they greatly abridge the usual duration of life; and if the operation of removal be successful in both instances, the source of suffering is wholly removed. Neither of these diseases are invariably attended with great severity of suffering. Calculus may exist for years in the male, and, at first, without apparently impairing the health, or causing more inconvenience than arises from increased irritability of the bladder. Ovarian tumors sometimes acquire a large size, and give no uneasiness but what their weight occasions; and instances are on record of the disease having lasted during nearly the whole of a long life. Of this prolonged and innocuous form of the disease, Dr. Seymour, in his excellent monograph of diseases of the ovary, quotes a singular case from the *Practical Med. of Pierre Frank*, in which the patient shewed signs of the disease at the age of thirteen, and lived unaffected, but by the size of the swelling, to the age of eighty-three. This, and other similarly prolonged forms of ovarian disease, are to be regarded as exceptions to its usual progress; and cannot be admitted as affording valid objections to the operation for a disorder that, in its

common forms, embitters the course and shortens the duration of life.

My own experience of encysted dropsy leads me to look upon it as something more than an inconvenience. In all the cases that I have met with, and in which I have had an opportunity of witnessing the patients from the commencement to the termination of the disease, I have witnessed great suffering, unceasing inconvenience, and a desire to rid themselves of the burden at almost any risk. I allude now to the more simple forms of encysted dropsy, unattended by malignant growths; in which latter degenerations the sufferings of the patient are greatly increased, and gradually end in her destruction. The simpler form of cyst does, I believe, occasionally degenerate into malignant action; and such a termination of the mildest forms of the disease, though not a frequent occurrence, forms an additional motive for the removal of the cyst in its early stages.

Entertaining this feeling in favour of the operation, I found, on inquiry, a strong body of experience in the cases that had occurred in the practice of Mr. West, Dr. Lizars, Dr. Clay, Mr. Walne, and Mr. Bird, that sufficiently attested the propriety of the operation; and the question lay between the choice of the major or the minor incision.

At the first view, the latter appears to be the safer and easier operation, requiring a smaller excision of the parietes of the abdomen; and exposing, in a much less degree, the viscera to the existing causes of inflammation. These apparent advantages, however, are more than counterbalanced by the difficulty of manipulation which the operator experiences in getting a large collapsed mass through a small parietal incision, and in reaching the peduncle of the cyst so as to secure it by ligature. The larger incision does not probably expose the patient to a greater chance of inflammation than a smaller one; and it has the incalculable advantage of giving free access to the tumor, and facilitating its extraction from the abdominal cavity without violence. I look upon the absence of all undue forcible manipulation as the main recommendation which this operation possesses. The first case, therefore, of ovarian cyst that presented itself, in which no circumstances seemed to militate strongly against the operation, I determined

to propose it; and to perform it, if acquiesced in by the patient and her friends.

At the latter part of the present summer a case was admitted into the hospital, under Dr. Addison, that in many respects seemed to be a good subject for extirpation; but in others exhibited points of susceptibility that might be thought to disqualify her for the endurance of a severe operation and of its consequences. She was young and healthy: the disease was of recent formation, and had not impaired her general health. On the other hand, she was of a sanguine temperament, excitable, and prone to hysteria from slight causes: her arterial system was readily excited; her pulse always quick; the catamenia occurring at short intervals; and her powers seemed to be not great: to which must be added, that the sexual organs, which were to become the seat of operation, were evidently in high action. Had she been labouring under any other disease, as, for instance, calculus in the bladder, she would not have been considered a good subject for lithotomy. Inflammation would most probably follow, and the disturbance which her nervous system would sustain would convert the inflammatory action into one of an unhealthy kind. Nevertheless, I thought it my duty to perform the operation;—a duty which every surgeon must occasionally feel to be a painful part of his profession, but from which a lower feeling must not induce him to shrink.

The operation was performed in the presence of Drs. Addison, Babington, Barlow, Lever, Oldham, and Freund; Messrs. Callaway, Cock, and Hilton; together with some of the senior students of the hospital. The operation is of so simple a kind, requiring so little knowledge of anatomy, and so little skilful surgical manipulation, compared with what the other larger operations in surgery call for, that I need not dwell minutely on the steps of its performance; especially as they will be found introduced, from the notes of my pupil Mr. Poland, in the following history of the case by Mr. Brereton, who carefully recorded every circumstance connected with the patient, from the time of her admission into the hospital.

CASE.

Reported by Mr. BREXTON.

E — D —, aged 19, admitted into Dorcas Ward. A remarkably fine-looking girl, of dark complexion, hair, and eyes, 5 ft. 8 in. in height: has come of *healthy* parents: has resided at —, in the capacity of barmaid to her father, in which occupation she has never been overworked. As a girl, her health has been always good, and she has scarcely suffered at all from the common infantile diseases. At 13 years of age the catamenia first appeared, and have since continued to recur every fortnight: the discharge is small in quantity, unaccompanied by any bearing-down pains, and usually lasts only two days. Fifteen months back, without any assignable cause, and unpreceded by any symptoms that she is aware of, she perceived a slight increase in the size of her abdomen; the increase being so equal on both sides, and being moreover so small in degree, as to excite in her an apprehension only that she was getting too fat. She took but little notice of this enlargement, and no serious constitutional disturbance seems to have ensued till *three months since*. She then experienced severe pain on the right side of the abdomen, about midway between the cartilage of the ninth rib and the superior crest of the ilium. This pain is described as having been excessive, accompanied by rigors, heat of skin, and the usual pyrexial symptoms. Occasionally it traversed the abdomen, and attacked a similar part of the left side. Its usual seat, however, was on the right side. Active depletion was employed beneficially, so far as removing the pain; but to no purpose as regarded the enlargement, which, on the contrary, has from that period most rapidly increased; and is now, to use the girl's own words, "filling up her abdomen, and pressing upwards into her chest." She has, during the last three months, lost flesh.

APPEARANCES ON ADMISSION.

1. *Head*.—Well formed, free from pain, giddiness, or noises. Special senses all perfect. Answers rational, intelligent. Face healthy: cheeks of good colour, but easily excited to deep blushes, succeeded by pallor. Eyes bright, clear, intellectual.



Malar bones rather prominent: lips pale. Tongue slightly furred; moist. No cough; slight palpitation. Anorexia; thirst; nausea after food: occasional vomiting, of a sour taste. Bowels costive. Urine in good quantity, of natural colour, not coagulable. General cutaneous surface of the natural heat, but usually dry.

2. *Thorax*.—Well formed, but not largely developed; ribs rise well, and equally: respiration rather hurried: pulse always quick, small; under examination reaching 100: heart's impulse diffused, weak: percussion normal throughout: auscultation detects not the slightest trace of disease in the lungs; and only increased activity, with tumultuous action of the heart, the sounds of which are too clear and distinct, indicative of irritability.

3. *Abdomen*.—A large tumor, presenting no prominences, occupies the entire cavity: slight fluctuation is felt on the *right side*. Below the margins of the ribs, on the same side, something like adhesions can be distinguished\*. On the left side, in the lumbar region, a hard mass can be distinctly felt, apparently free from adhesions: it can be traced upwards nearly to the cartilages of the last ribs, and downwards into the pelvis, and seems to be continued into the fluctuating mass on the right side. Position has no effect on its form, nor on the comfort of the patient; nor does pressure produce the smallest uneasiness. The veins are not turgid. The abdomen around the umbilicus measured 49 inches.

There is no cedema, nor varicose condition of the lower extremities. In the *left leg* and *thigh*, however, she not unfrequently experiences cramps and pains.

A little liq. potass. ex cerevisia was ordered, with an occasional *gentle* purgative to open her bowels; for it was remarked that a pain at the upper part of the left side of the abdomen almost invariably followed a *brisk* cathartic. Her spirits remained good; and her countenance so calm and cheerful, that a bystander would scarcely have credited the presence of so severe a disease. The least excitement, however, as an examination, would greatly distress her; and a slight walk would often produce a degree of exhaustion, threatening a fainting-fit.

\* Dr. Addison did not, I believe, allow this.

After a time, she and her friends were made thoroughly acquainted with the operation of excision; and all the dangers having been minutely pointed out to them, the case was left in their hands. They immediately assented to its performance. A proper room was then prepared for the girl's accommodation; and to it she was removed, some weeks before the operation, to accustom her to the change of room and attendants.

*July 29th.* At night she began to menstruate, and continued in that state till 31st at night.

*Aug. 1st.* Her appearance being promising, and her confidence in success great, Mr. Key, at 3 P.M., performed the operation of excision.

#### OPERATION.

The operation was fixed for Saturday, July 29th; and transverse lines were made with the argenti nitras across the anterior part of the abdomen, in the morning. The girl, however, complained of a good deal of pain in the right hypochondriac region, and it was deemed prudent to postpone the operation till Monday. On the Monday, however, it was found that catamenia had appeared; and, as they usually continued for two days, it was again postponed. On visiting her on the following day, Tuesday, August 1st, it was found that menstruation had entirely ceased yesterday evening, having been occasioned by the excitement of Saturday. She felt extremely well, had had two of the best nights since she had been in the hospital, and expressed herself as never having been in better health. Considering all these circumstances, Dr. Addison and Mr. Key decided at once on performing the operation immediately, and not allow such a favourable opportunity to pass by. The room was gradually heated to 70° Fahr.; and at 3 o'clock the patient was placed on a suitable table, in the recumbent posture, on the back; and Mr. Key commenced the operation by making an incision, about four inches long, below the umbilicus, in the median line; and, after carefully dividing the several layers, exposed the peritoneum. A small opening was made into this, and enlarged upon a director: several ounces of dirty-coloured ascitic fluid escaped. Mr. Key then passed his finger through the wound, on either side of the

tumor, and found it perfectly free. An incision was now made from near the ensiform cartilage to the upper extremity of the first incision: the integuments and superficial fascia were cut through by this sweep of the knife, and the peritoneal cavity freely laid open to the same extent by a broad probe-pointed bistoury, carried from below upwards upon the finger: the lower extremity of the first incision was also enlarged by means of the bistoury. The tumor was thus perfectly exposed, and presented no adhesions whatever: there was little or no bleeding from the superficial vessels: the abdominal parietes were thicker than might have been expected. The edges of the wound were kept in close contact with the surface of the tumor, which Mr. Key allowed to escape gradually, assisting its protrusion by depressing the sides of the parietes, which was requisite on account of the great size of the cyst in its antero-posterior diameter. There was a cord-like peduncle at the right side of the lower part of the tumor, around which a single ligature was placed and divided. The tumor, as it issued from the abdomen, was received by Dr. Lever, and gently raised; while the peritoneal cavity was immediately closed behind it, by approximating the edges of the incision. Much ascitic fluid escaped, which required carefully sponging up. Mr. Key now passed a strong needle, fixed to a moveable handle, and armed with a double ligature of strong silk, through the centre of the peduncle. The lower ligature was tied pretty easily; but the upper one required a great deal of force, owing to the broad expansion of the ligament. The peduncle was now divided between the ligature and the tumor, and the diseased mass at once lifted away: there was not the least bleeding. The three ligatures were placed at the lower extremity of the incision, and the edges of the parietes brought together, and retained in juxta-position by means of about twelve interrupted sutures. The operation did not last long, and the patient bore it extremely well. Long strips of adhesive plaster were placed at the interruptions of the sutures, and served to keep the edges of the wound in close contact: a broad eight-tailed bandage, which had been laid ready under the loins and back of the patient before the operation, was now uniformly applied, and the girl placed in bed.

Aug. 1, 8 P.M. Temperature of room 72°. General surface perspirable: respiration easy: pulse 133: no pain or shivering: no delirium: no cough: has not slept: tongue moist: no vomiting: much thirst: no motion: no urine.

11 P.M. Temperature of room 70°. Pulse 130: thirst less: half an hour's sleep: 3 xvi. urine drawn off. In other respects as at last report.

2, 5 A.M. Temperature 69°. General surface profusely perspirable: pulse 130: respiration easy: tongue dry: vomiting at 4 A.M.: much thirst: some pain: some flatus: an hour and a half sleep: urine to 3 xij. drawn off: no motion. As before in other respects.

11 A.M. Temperature of room 69°. Slight perspiration: pulse 130: respiration easy: tongue moist: much thirst: vomiting two or three times: much flatus: some pain above pubes: no shivering: no motion: urine to 3 viij. ounces drawn off.

4 P.M. Temperature 70°. Slight perspiration: pulse 133: respiration natural: pain about scrobiculus cordis: vomiting constant: much flatus. In other respects as last reported.

8 P.M. Temperature 70°. Skin perspirable: pulse 140: respiration natural: *some slight shivering*, for the first time: pain at scrobiculus cordis: vomiting of a greenish fluid: 3 vi. of urine drawn off. In other respects as before.

12 P.M. Temperature 71°. Moist, perspirable: pulse 140, *but lessened after easing the bandages*: respiration easy: vomiting twice: tongue moist: one motion at 10: pain at scrobiculus cordis: no shivering. In other respects as at last report.

3, 6 A.M. Much relieved: 3 xij. of urine drawn off: three motions, following an injection: but slight vomiting.

1 P.M. Temperature 71°. Countenance anxious, depressed: eyes sunken: much eructation; slight mucous discharge with it: complains of pain in the right side: breathing easy: pulse 140, jerking: tongue foul, moist: urine drawn off to 3 viij., of good character: bowels very slightly opened by injection: no vomiting: skin hot, perspirable.

4 P.M. Temperature 71°. Expresses herself easier than at last report: has had some sleep: only one small vomit, of the same dirty green character, a few minutes since: bowels not

opened: countenance still anxious, but calmer than at 1. States that she was highly excited at last visit. Tongue moist: pulse 130, irritable: respiration irregular, often very deep: cutaneous surface warm, perspirable. Has drank soda-water.

7 P.M. Seen by Mr. Key. Temperature 71°. More calm: pulse firmer, 133: respiration more natural: cutaneous surface perspirable: no pain or shivering: a very little vomiting of tea: bowels not opened: 3vi. of urine passed *voluntarily*, first time, rather dark-coloured: has had half-an-hour good sleep.

Capiat Acet. Morph. gr. i. si opus sit.

12 P.M. Temperature 71°. Countenance calm: pulse 123, soft, more distinct: respiration very irregular: skin warm, perspirable: tongue moist, cool: thirst: bowels not opened: no urine in bladder: much flatus passed both from the stomach and large intestines: vomiting of a blueish-green character, but not to the same extent. She has had some sleep; during which the sister of the ward states that the respiration became calm and regular.

Aug. 4, 10 A.M. After a short time, the morphia was rejected, and vomiting has continued ever since. She has had only twenty minutes sleep since twelve last night, and that was after six this morning. At 5 A.M. Dr. Lever drew off her urine, which was in good quantity: he also administered an enema, which has been returned with some feculent matter. The sister states that the tongue, pulse, and general appearance are in no way altered for the worse. As the patient appeared inclined to sleep, no visit was made.

1 P.M. Seen by Dr. Addison. Temperature 70°. A little sleep: slight vomiting: pulse firmer, 130: respiration easier, more regular. In other respects as at the last report.

Capiat Mist. Magnes. coch. med.  $\bar{c}$  V. Opii m. ij. pro re nata.

To have, besides, jelly and brandy; and ordered by Mr. Key  
Acet. Morph. gr. i. si opus sit.

At 4 P.M. Mr. Poland, in consequence of complaints from the girl, cut the strappings, which gave her great relief. At 2 P.M. the first dose of M. M.  $\bar{c}$  V. O. was administered, which she retained, as likewise the brandy and jelly.

At 5 P.M., after a second dose of M. M.  $\bar{c}$  V. O., she vomited slightly; and again at half-past 8 P.M. (the vomit

to-day being of a darker, more coffee-coloured character); since which, up to the present time, 12 P.M., she has never vomited. She has had a little sleep, about half an hour, since five: bowels not opened: no urine passed: the quantity of flatus discharged much less.

12 P.M. Temperature 65°. On visiting her, she appeared as if just awakened from sleep: countenance anxious: eyes rather wild: forehead hot, covered with warm perspiration: answers irrational; talks of dead bodies and murders committed in the ward; but after a short time, her reason returned. She explained how Mr. Poland divided the strappings; the relief she experienced; the administration of the brandy and jelly; and said that the former had got into her head, and that her stomach and bowels felt quite empty. If left to herself, however, for a moment, the rambling would be recommenced. There were, also, a continued tossing of her head from side to side as if in search of some object, and a restless motion of her arms, with a frequent anxiety to hide her face in the bed-clothes, not at all unlike "delirium tremens." She complained of no pain: the respiration, except when she was spoken to, was gentle: pulse 128, so small as scarcely to be distinguished: skin warm, except her hands, which were cold, but by no means clammy: bowels not opened: urine to  $\frac{3}{4}$  xij. drawn off by Dr. Lever: tongue drier than it had ever been: thirst urgent. The wound was examined: it looked healthy; pus was exuding.

Capiat Morph. Acet. gr. i. statim.—Enema of strong warm beef-tea: and a small fire was ordered, to bring the room to its former temperature.

Mr. Poland remained with her. From the administration of the morphia, till 3 A.M. of the 5th, she slept. She was then visited by Mr. Poland. She was asleep: respiration however only 12: temperature of room 69°.

At half-past 5 A.M. Dr. Lever saw her: she was still in the same state.

At 8 A.M., without the smallest change, she died, continuing in the same drowsy condition to the last.

A careful examination of the tumor was made by Dr. Oldham; and of the abdomen by Mr. Browne and Mr. Poland.

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An account of the appearances found in the tumor, and of the post-mortem examination of the abdomen, are subjoined.

DESCRIPTION OF THE TUMOR.

The tumor appeared as a large globular body, about the size of a pregnant uterus at term, and weighed 24 lb. It consisted almost entirely of a large capacious sac, distended to the utmost by its contained fluid, and readily fluctuating on the slightest tapping. The lower portion of the tumor on the left side was harder and of a more solid consistence, which arose from the development of a number of secondary cysts within the cavity of the parent sac. The external covering of the tumor was uniformly smooth and glistening, with the exception of some few very delicate flakes of false membrane about the centre of the anterior surface, which floated out under water, but were not recognisable during the operation, and did not cause the slightest resistance. The uniform globular outline of the tumor was interrupted at the inferior part by several constricting bands, furrowing the surface, and occasioning inequalities by the bulging compartments marked out by them. These were principally apparent around the more solid part on the left inferior surface, and corresponded with the growths within. On the lower pelvic extremity of the tumor were two portions, which had been divided during the operation, at a distance of four or five inches from each other, which marked the attachments of the tumor to the uterine appendages. One of these, which Mr. Key had first divided, corresponded to the right ovarium. It was a band of tissue about an inch in length, and nearly the same in breadth, covered by serous membrane, hanging free from the body of the sac, and gradually merging in the parietes of the cyst. It was not very vascular, some few small vessels only being traceable in it. The other portion, which corresponded to the left ovarium, presented a much broader surface, and evidently formed the principal attachment of the tumor. This was full of large truncated vessels, both arteries and veins. Six arterial tubes, of rather larger calibre than a crow-quill, were counted; and several much more capacious veins, surrounded and supported by cellular membrane, formed the main component tissue of this peduncle. No trace of the ovarian stroma or Graafian vesicles

was to be seen. It is to be regretted that the cyst was accidentally burst, so that its capacity could not be accurately ascertained: many pints, however—probably eighteen or twenty—of a thick transparent mucus, of a yellowish tint, and loaded with organic globules, were contained within it. The parietes were generally not much thicker than a crown-piece, and were internally striated in parts, and a few more prominent bands were outlined on this surface. The left lower portion presented a raised surface, several inches in circumference, of developing cysts. Some of these were as large as a small orange; and numerous other cysts, of varying size, were densely grouped together: the larger of these accurately enclosed others of smaller size; and three or four layers might thus be successively removed, until the ultimate cyst was burst, which yielded usually a thicker and more opaque mucus than the great parent sac. All these cysts were well supplied with vessels, which ramified abundantly on their delicate walls. The general vascularity of the growth was demonstrated by injection. The arteries in the larger peduncle readily carried the injection to the different parts of the tumor; and some large solitary veins were brought out, returning the injection into the great veins of the peduncle. Some small well-injected portions were examined under the microscope, and were found full of minute vessels, not dividing into meshes, but running in parallel lines, like the ultimate vessels of muscular fibre.

**POST-MORTEM APPEARANCES OF THE BODY.**

Inspection made August 6, 1843.

The body was lax, spare, and devoid of fat; the features much shrunk and collapsed; and the face still expressive of anxiety.

On removing the dressings which covered the abdominal incision, the edges presented a dark unhealthy aspect, adhering to each other in interrupted spaces only, and there but loosely.

The edges being separated, and the abdomen examined, the omentum was found somewhat puckered, and adherent closely to the abdominal parietes on the right side of the incision, the adhesion being easily separable. It was also adherent, by filamentous and close adhesions, to the subjacent intestines.



CASE  
OF  
**EXTRA-UTERINE FŒTATION.**

BY B. C. B. ROSE,  
OF SWAFFHAM, NORFOLK.

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WITH A DESCRIPTION OF THE PARTS.  
BY DR. OLDHAM.

As an old pupil of Guy's Hospital, I feel no trifling gratification in being enabled to contribute to its Reports the following record of a case of extra-uterine pregnancy, in which the ovum was arrested in its passage through the Fallopian tube.

The late Dr. John Clark, after giving the history of a similar case, observes, that "so many cases of extra-uterine gestation have been recorded by various authors, that they cease to be matter of surprise;" which is very true: still, there is enough that is highly interesting, in regard to the nutrition and development of an extra-uterine fœtus, to justify the recording of another case.

The patient in the present instance was a woman of the town, MATILDA L——, in the 19th year of her age. She had been her usual promenade, with a female friend, on Sunday evening, June 19, 1842; had eaten a hearty dinner on that day; enjoyed her tea at five o'clock; and went to bed a short time after ten, in apparent good health. About half-past two A.M. on the Monday, her grandmother, who slept in the same room, was awakened by a noise; and on searching for the cause, discovered that her grand-daughter had, in attempting to use the chamber-pot, fallen upon the floor. When raised, she complained of an acute pain at the lower part of the abdomen, experienced nausea, and felt exceedingly faint. She was replaced in bed; when she became sick, and vomited

a little bile; and a profuse and cold perspiration came over her, and her faintness increased. Her grandmother, becoming alarmed, sent for an experienced nurse; who, upon her arrival, just previously to five o'clock A.M., found the young woman still complaining of pain in her body, and without pulse at the wrist. This person, seeing that she was extremely ill, sent to my house. My assistant immediately visited the patient, and found her as reported by the nurse; but not recognising the nature of the case, and certainly not apprehending such immediate danger, merely prescribed an anodyne aperient, and left her. On my rising that morning, I learnt that she had died about seven o'clock. On my seeing the corpse at ten, I was much struck with the exceedingly blanched appearance of the surface, and also observed that the abdomen was somewhat tumid; from which circumstances I suspected that she had died of internal hæmorrhage. I made a post-mortem examination sixteen hours after death, confining my search to the cavities of the abdomen and pelvis. On opening the cavity of the peritoneum, the intestines were found to be floating in a large quantity of dark-coloured blood, amounting to between six and eight pints, the larger portion of which was in a fluid state. Having removed the blood, I prosecuted my search for the source of the hæmorrhage; and soon detected a tumor, about the size of a walnut, lying in the left iliac fossa, and connected with the uterine appendages, which, together with part of the uterus, I then removed; and now regret, for an obvious reason, that I did not take away the whole of that viscus: but anxious not to disgust the relatives, I divided the uterus at its neck, high up, in order to prevent all drainage per vaginam.

When I came to inspect the detached parts at my leisure, I saw that the tumor was of such an interesting character, that I at once determined to forward it to my eldest son, at that time a student at Guy's, who very judiciously transmitted it to Dr. Oldham: and as he has kindly taken upon himself to describe the appearances on dissection of the abnormal parts, I will proceed to notice the state of health of the subject of this case previously to the fatal occurrence.

Upon inquiry of the grandmother, who, by the bye, was not aware of the life her kinswoman had been leading,

I ascertained, that, early in the month of May, M. L. was annoyed by sickness early in the morning, with a falling-off in her appetite, and which, during the last two or three weeks of her life, became exceedingly capricious. With regard to her catamenia, they were stated to have been absent at the periods of April and May; but as there had been observed occasionally a slight sanguineous discharge, perhaps much reliance cannot be placed on that part of the report.

I cannot conclude my brief history without making one or two remarks. First, On the pain. The earliest symptom in the above case appears to have been a severe pain in the lower part of the body; marking, in all probability, the period of the giving way of the textures enveloping the fetus, and the commencement of the hæmorrhage, as manifested by the rapid occurrence of great faintness. It is worthy of notice, that in the cases recorded by the late Dr. John Clarke\* and Mr. Langstaff† the patients were, in the first instance, seized with violent pain in the lower part of the abdomen, succeeded by sickness, and a disposition to faint. Secondly, On the time which elapsed from the commencement of the symptoms to their termination in death, as indicative of the rapidity of the bleeding. In the present case the course was rapid; for whilst, in Dr. Clarke's case, the patient was suffering from the 13th of May, in the morning, to the evening of the 16th (the quantity of blood lost in each case being the same), in my case the patient was destroyed in five hours. In Mr. Langstaff's case, "the quantity of blood measured upwards of two quarts," and the patient survived but seven hours from the commencement of the attack.

As, in all the best-recorded instances of early rupture of a tubular gestation, pain in the lower part of the belly, with general pallor, and increasing faintness proceeding to syncope, have been described as invariably resulting from lesion of the vascular parts entering into the structure of the ovum and its envelope; every additional case possessing these

\* Transactions of a Society for the Improvement of Medical and Chirurgical Knowledge, Vol. I. page 216.

† Medico-Chirurgical Transactions, Vol. VII. page 437.

characteristics will enable us, with increased confidence, to form our diagnosis, and to pronounce that the resources of our art have hitherto been of no avail in a situation so perilous.

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## DESCRIPTION OF AN EXTRA-UTERINE PREGNANCY,

BY DR. OLDHAM.

The preparation which Mr. Rose sent me, and the history of which he has just recorded, was unavoidably set aside for some months, in weak spirit, before I could examine it. I regret this, on account of the opportunity being lost for injecting the uterus and distended tube, and the consequent omission of a minute description and delineation of the blood-vessels of the maternal system which had supplied the place of a placenta.

The left Fallopian tube, near its extremity, was expanded into a soft, impressible, round swelling, about the size of a billiard-ball. Its surface was uniformly smooth, with the exception of two rugged small rents, neither of them larger than a sixpence, on the anterior surface, which clearly marked the rupture of the tube and the source of the hæmorrhage. The edges of the opening were exceedingly thin, as though the structure of the tube had been distended to its utmost, and had burst from the increase of its contents. The fimbriæ were stretched out and exaggerated: some few of them were expanded into largish laminæ, and empty vessels could be seen on their delicate sub-transparent tissue. The containing ovum was exposed, by slitting along the swelling on the posterior surface opposite to that which had given way. The walls of the oviduct, which immediately covered the ovum, were found reduced to an almost transparent thinness: they had not been reinforced by the least deposit of new matter, so as to resist the distending force from the development of the ovum. The inner surface of the tube, at this part, was thrown into long, thin, parallel laminæ; some of which readily floated out under water: whilst others had been pressed and flattened against the side of the tube, requiring gentle solicitation with a camel's-hair brush to loosen them. Several of these valvular prolongations were collected together more abundantly in the vicinity of the rents, where

the villi of the exochorion appeared longer and more free : and viewing the approximation of the two sets of capillary vessels, the looping vessels of the fœtus in their exochorion, and the capillary rete of the spermatic arteries distributed over the laminæ of the sacculated tube, when placed side by side, they might not unaptly be compared as a placenta to the prevailing character of that in the carnivora. The walls of the tube became thicker as they approached the uterine extremity of the ovum : the lining membrane was thrown into more closely-set folds, which, as they neared the uterine portion, were reduced in size, and assumed the arrangement and character of an ordinary oviduct.

The outer membrane of the ovum was everywhere surrounded by condensed and coagulated blood ; and the villi were with some trouble extricated from it. The villi themselves, when here and there freed from the entangled fibrin, were branching and slender ; but nothing like a deciduous membrane intervened between them and the folded lining-membrane of the tube. A clear, delicate amnion, holding fluid, contained the young fœtus. The fœtus itself was scarcely an inch in length : its body was flattened, and the head bent closely downwards on the front part of the trunk. The eye, with its dark pigment, was clearly seen ; and the extremities were budding out in a normal manner. The cord was about half an inch in length ; but the umbilical vesicle was not discovered, although carefully looked for.

The corresponding left ovary was larger than its fellow ; and a mamillary projection, with a little fringe of membrane coming out from its most prominent part, marked the probable site of a corpus luteum. On bisecting this, the characteristics of a corpus luteum were apparent. A margin of yellowish tissue, about an eighth of an inch in diameter, the colour of which was much obscured by maceration in spirit, was set in the surrounding stroma, which was condensed and arranged in concentric fibres around it. The lining membranes were separated from the luteal structure, and appeared as a shrivelled bag, plugging up, and retained by the small opening through which the ovum had escaped ; so that these vesicular membranes had been caught in an attempt at their expulsion ; and what little had passed the opening,

dangled free from it, and the remainder formed the detached contents of the luteal body. I have placed in the museum a corpus luteum, in which a portion of the laminated lining membrane of the cavity has been detached, and plugs up, in a similar manner, the dehiscent aperture in the ovarium; a circumstance which has been recorded by Cruikshank as having been seen by him in the rabbit, and has received its correct explanation by Dr. Barry. Several of the Graafian vesicles were enlarged, and appeared as empty calices in the ovarium. The uterus was generally and uniformly increased, being twice the size of a virgin one: its walls were much thickened, its muscular structure developing, and the arteries and veins considerably enlarged. The body had been detached from the cervix in making the post-mortem examination. The cavity was flat, and increased in just proportion to the augmented size of the uterus. It was lined by a slightly-raised efflorescent membrane, which had several superficial alveolar depressions on the anterior surface. On examining this in various thin sections, by the aid of the microscope and common lens, I failed to detect what I have recognised as the true deciduous membrane. My own observations on this structure perfectly accord with Dr. Sharpey's; and I have followed him in tracing its formation and appearance in the early ovum of the dog, and am well convinced of the accuracy of his description, and the fidelity of his delineations of it. In the human decidua, the transformation of the uterine glands has been clearly apparent to me in some favourable instances for its examination, where the uterus has been lined by it in early pregnancy. A similar aspect, and equally the result of a change in the uterine glands, is seen in the lining membrane of the uterus in the pregnant porpoise, where the short, raised villi of the exochorion carrying the capillary vessels of the umbilical arteries are received into the orifice of the enlarged uterine glands, whose walls have become very vascular. A thin section of the uterus shews the long and sometimes tortuous glands, and they may be traced into the recipient apertures on the free inner surface of the uterus. The appearance of the uterus of the cetacea, and the character of its fœtal membranes, approximates very closely the early condition of

the uterus and chorion of the dog, and the earliest period in the human pregnant uterus. The analogy obviously fails, however, in the altered membrane of the latter being deciduous, whilst that of the cetacea is non-caducous. The alteration in the mucous membrane of the uterus, in the extra-uterine pregnancy I have been describing, appeared to me more like the pale, infirm, and hardly-organized membrane which is thrown off in dysmenorrhœa, than the deciduous structure in natural pregnancy. And in two other preparations of tubal pregnancies, now in the museum of Guy's, the changed lining membrane deviates in appearance from the condition assumed when the uterine glands have become enlarged, bulging, and vascular, as in normal pregnancy. The ovarium and tube in the unoccupied side were not perceptibly altered.



W. Hurst del et lith

M. N. Hanhart lith. Printers





CASES  
OF  
PUERPERAL CONVULSIONS,  
WITH REMARKS.

BY JOHN C. W. LEVER, M.D.

THE following Fourteen Cases of Puerperal Convulsions, out of Seven thousand four hundred and four women attended by the Pupils attached to the Lying-in-Charity of Guy's Hospital, have occurred between the years 1834 and 1843.

The symptoms which marked their course, and the principles which guided their treatment, present no new or extraordinary feature ; but the coincidence of an albuminous condition of the urine, in nine out of ten cases in which that secretion was examined, is a fact which, so far as my investigations and inquiries have extended, has not been previously remarked.

CASE 1.

*Fifth Confinement—Anæmic Convulsion from Loss of Blood—  
Mother recovered—Child born alive.*

ELIZA H——, aged 36, in labour with her fifth child. When seven months pregnant, she had a discharge of blood ; and about a week previous to her labour, whilst rising from her chair, about half-a-pint again passed from her, unattended by pain or effort : this discharge continued, in greater or less quantities, up to the time of her labour. She was much depressed in spirits, and complained of feeling weak : her pulse was feeble, 80. She had been living in a state of most abject penury for two or three months, subsisting for days on a single meal of bread and tea. Her face and body were covered with cachectic sores. Mr. Tweedie, who was called to Mr. Champion's assistance, made an examination. The os uteri scarcely admitted the point of his finger, and the disturbance brought back a return of the bleeding. She was ordered,

Ol. Ricini ℥vi. Tinct. Opii. ʒss. s. s.  
Infus. Rosæ C. c̄ Acid. Sulph. dilut. pro potione.  
A little sago, flavoured with wine.

On the 28th, and morning of the 29th, she was better : the discharge was not so great, but of a more offensive character. At 10 P.M.

L L 2

Mr. Tweedie was summoned: he was informed, that since 2 o'clock she had had several fits resembling those of epilepsy, followed by stertorous breathing, and insensibility: her pulse was 72, feeble; pupils variable: on being roused, she said she had a most severe headache. During Mr. Tweedie's visit, she was seized with a rigor, followed by paroxysms of convulsion, alternating with stertorous breathing. Towards the conclusion of these fits, there seemed to be a certain degree of uterine contraction; and, on examination, the os uteri was found fully dilated, the child's head presenting at the brim of the pelvis. Her hair was removed from her head; but the pulse would not admit of the least depletion. From this time the convulsions increased in force and frequency until 1 A.M., when the child was suddenly expelled during a fit;—a female, living, but very small, and apparently but seven months advanced. The placenta was readily removed. There was no unusual hæmorrhage, and the perinæum had not been injured. After the birth of the child, she lay insensible, and could not be made to swallow either medicine or sustenance: the pulse remained exceedingly feeble, and 72: the convulsions continued to recur, though less powerfully than before; and as depletion was contra-indicated, abundant dashing of cold water over the face was the only remedy which circumstances permitted to make use of. A full dose of æther, liq. opii sed., and ammonia, was with difficulty administered. The convulsions continued all night, with scarcely any abatement, interrupted only by intervals of coma: pulse 72, weak: pupils contracted: conjunctiva clear: she passed her urine in the bed.

In consequence of the abject destitution of her home, she was removed into Guy's Hospital, and placed, under Dr. Ashwell's care, in the Obstetric Ward. During the removal she had a convulsion, and reached the ward nearly lifeless.

Lot. Spirit. cap. raso. Hyd. Chlorid. gr. xij. stat.

Enema Colocynth. postea.

To have sago, flavoured with wine.

She remained in this critical state for some days; but then gradually and slowly recovered, and left the ward in a state of convalescence.

#### CASE 2.

*Primipara—Unmarried—Mother recovered—Child born alive.*

ELLEN B——, unmarried, and 21 years of age, was taken in labour on Monday evening, April 21st. The membrane ruptured when the os uteri was of the size of a dollar, firm, and resisting. After complaining of considerable pain in the head, and vomiting violently, she was attacked with convulsions. Mr. Chabot, her attendant, bled her, cut

off her hair, applied cold to her head, and administered a dose of calomel. Mr. Chabot requesting my assistance, I visited her. The head was then pressing on the perinæum: her pulse was full, bounding, 72: her pupils contracted. The fits occurred three times. Blood was again drawn. The fits continued to occur until the birth of the child and secundines, which was effected in about four hours. From this period she had no more fits, but was insensible for a long time. As she was in great distress, being with her mother, a poor widow, she was removed into the Obstetric Ward of Guy's Hospital, where she speedily convalesced.

CASE 3.

*Primipara—Anæmic Convulsions—Child born alive—  
Mother recovered.*

M. S——, aged 21, a thin delicate young woman, was taken in labour on April 5th. The membranes ruptured early, before the dilatation of the os uteri; and by the time the head had advanced into the pelvic cavity she was extremely exhausted. As the head was pressing in the perinæum, she was attacked with a convulsion: the pulse was 130, scarcely to be felt: the extremities cold; and the head hot. Warmth was applied to the extremities, cold to the head; and so soon as she could swallow, some stimulus was poured into the stomach. Three fits occurred before, and one after the expulsion of the child. Both mother and child recovered.

CASE 4.

*Convulsions before delivery—9th Confinement—Mother recovered—  
Child born alive.*

LOUISA M—— was seized with a very severe convulsive fit six weeks before her confinement: this was speedily followed by a second. Venesection, mercurial purgatives, tartar emetic, purgative enemata, cold applications to the head, were ordered, and with relief. Four weeks after, or two weeks before her labour, she was again attacked, and similarly treated. As she complained of a constant pain in her head, noise in the ears, dimness of vision, &c., a seton was passed through the nape of the neck: this afforded her great relief. The labour was natural, although some considerable hæmorrhage followed the expulsion of the placenta. The child was born alive.

CASE 5.

*Primipara—Version—Urine highly albuminous—Mother recovered  
—Child still-born.*

ELLEN D——, aged 23, a very large muscular Irishwoman, who had been married nine months, sent for Mr. Woolnough at half-past 3 o'clock P.M., October 20th. He was told that at 3 P.M. she began

to talk at random. At 5 o'clock she was attacked with a very severe convulsion: during its continuance, her pupils alternately contracted and dilated in quick succession: her pulse varied, ranging from 100 to 160 beats in a minute. He bled her from the arm to  $\text{℥}xl$ ; her head was shaved; cold evaporating lotions were kept constantly on the scalp; mustard-poultices were applied to the feet; a turpentine injection administered; and ten grains of calomel were placed upon the tongue. At 8 o'clock p.m. another severe convulsion occurred, when  $\text{℥}xij$ . more blood were abstracted from the arm. At 10 o'clock, Dr. Lever found, upon examination, the os uteri was dilated to the size of a half-crown, the membranes protruding, and the head presenting: and as the convulsions recurred very frequently, and as their strength by no means diminished, he thought it advisable to perform the operation of version: this was accomplished, and a still-born female child expelled: the uterus contracted firmly, and in ten minutes expelled the placenta. After her delivery, the convulsions recurred; and as the pulse maintained its firmness and tone, blood was again abstracted, by opening the temporal artery and by cupping. At 2 a.m., October 29th, her fits continued, at intervals of about twenty minutes: her pupils were dilated: she was insensible: her pulse was full, 110. She was ordered *hyd. chlorid. gr. iv. 3tis horis*. At 10 a.m. she had another convulsion: her pulse was full and hard, 100.  $\text{℥}xxx$ . more blood were taken from the arm: and this last quantity of blood was found to be *very much buffed and cupped*, although none of the blood abstracted *previously* presented these appearances. At the suggestion of Dr. Ashwell, she took *ant. pot. tart. gr.  $\frac{1}{2}$*  every quarter of an hour; and remained nearly an hour without being convulsed. At 1 o'clock she had a very violent fit; and was ordered to continue the *ant. pot. tart.* At half-past 10 p.m. her pulse was 110; and there were some symptoms of returning consciousness.

*Oct. 30.* Much the same: rather more sensible: the bowels have been relieved: she was ordered *hyd. chlorid. gr. i. cret. prep. gr. ij. 4tis horis*.

*Oct. 31.* As she was in great distress, living in a very low lodging-house, she was brought into Petersham Ward, Guy's Hospital, and continued there upwards of five weeks. The mercury produced considerable irritation of the mouth and bowels; to relieve which, various remedies were resorted to. She suffered also very considerably from a vaginal abscess, accompanied with ulceration of the sphincter.

Her urine, which was daily abstracted by the catheter, was subjected to the usual tests; and was found, at first, *to be highly charged with albumen*. This gradually decreased until November 3, when it lost all traces of that substance.

Three weeks previous to this woman's confinement, her legs and thighs were considerably swollen: and so oedematous were the eyelids in the morning, that she could scarcely see. She presented the appearance offered by patients labouring under the Morbus Brightii, to such a degree, that my late colleague Mr. Tweedia, Dr. Gull, and myself, who saw her at distinct times, were equally impressed with the idea that she was affected with that disease; and it was this impression that led us to investigate the nature and character of her urine.

CASE 6.

*Anæmic Convulsions — Married — 4th Confinement — Partial Placental Presentation — Mother recovered — Child still-born.*

C. W——, a female of moderate stature, with light hair, 23 years of age, and who had never borne a living child, sent for Mr. Woolnough, November 19th. There had been some considerable hæmorrhage (a pint), and the pains were short and frequent. On examination, the os uteri was dilated to the size of a crown-piece; the soft parts were relaxed, the placenta partially presenting; posteriorly, the membranes were entire. As the bleeding continued, Mr. Woolnough ruptured the membranes: the feet of the child and a large coil of funis presented: the pains continued, and in about half-an-hour the child was expelled. It was still-born, and to all appearance had been dead for some days.

This patient progressed favourably until November 22d, at midnight, when Mr. Woolnough found her in convulsions: her pulse was slow and feeble, 55: the pupils were dilated. The *urine drawn from the bladder* gave abundant evidence of albumen, upon the application of the proper tests. I ordered her,

Jul. Am. Sesq.  $\bar{c}$  Sp. A. Aromat. m xij. 4tis horis.

Ol Ricin.  $\bar{z}$ i. cras primo mane sum.

At noon, the bowels had been freely opened; the pulse was feeble, 65; the tongue clean: no return of convulsions: the *traces of albumen in the urine are very faint.*

Nov. 27. In every respect improved.

Dec. 1. Convalescent. *All traces of albumen lost.*

CASE 7.

*Primipara — Unmarried — Child expelled by the natural efforts — Urine coagulable — Mother recovered — Child born alive.*

ELIZABETH G——, aged 19, a short girl, unmarried, with light hair and of fair complexion, was taken in labour at 9 P.M. on Monday, February 7th. The labour progressed slowly, but naturally, until Tuesday at 3 P.M., when the os uteri was dilated to the size of a crown-

piece, the labour-pains recurring with vigour: the head soon descended to the outlet; but the parts offered great resistance, from their rigidity. At half-past 5 she began to talk incoherently; and suddenly a convulsive paroxysm supervened, rapidly followed by a second; and during the fit the child was expelled. The uterus contracted firmly. In a short time a third convulsion took place, and the placenta was then expelled. She was bled to  $\text{℥xvi}$ . Hyd. chlorid. gr. x. were placed upon the tongue. The head was shaved; and ice, in a bladder, kept continually applied. The pulse was slow and labouring. Hirudines xxiv. were ordered to the temples; but during their application she was attacked with a convulsion much more violent than the preceding fits; and she lay in a state of coma for three-quarters of an hour. At 12 o'clock, another convulsion took place. The ant. pot. tart. was administered, in half-grain doses, every two hours; but as the fits recurred more frequently, it was administered every hour, for three hours; and as nausea was produced, the dose was diminished to  $\frac{1}{4}$  of a grain. After two o'clock she had no more convulsions; but as the calomel had not operated, 15 grains of jalap were given, followed in an hour by the enema saponia. This had the effect of producing copious very offensive dejections. During the course of the evening the urine was abstracted from the bladder by the catheter; and when subjected to a boiling heat, it *became like gruel*; and a subsequent examination, with nitric acid, shewed that it contained a *considerable quantity of albumen*. As this girl was in great distress, she was removed into Petersham Ward. For several days she continued the ant. pot. tart.; with occasional doses of aperients, as her bowels were naturally torpid. She left the hospital perfectly recovered.

It appeared, on inquiry, that for some time previous to her confinement she was troubled *with puffiness of the eyelids and with œdema of the legs*.

#### CASE 8.

*Primipara; delivered by the Forceps—Urine albuminous—  
Child born alive—Mother recovered.*

Reported by Mr. Stone.

" ANN M —, aged 19, a married woman, of small stature, of leucophlegmatic temperament; has been in good health during her gestation. For several days previous to the commencement of labour she was annoyed with spurious pains referred to the back and stomach. On Friday night, uterine efforts commenced: these continued throughout Saturday, until 3 o'clock on Sunday afternoon, when Dr. Lever was called to see her. The head was partly in the cavity; the membranes ruptured; the pelvis of small size, and the perinæum thick and rigid. At half-past 4 she had a convulsion: she was bled to 26 ounces; a castor-oil injection was administered, and the mist.

" antim. pot. tart. was given every half hour. *The urine, drawn from the bladder by the catheter, became cloudy both upon the application of heat and nitric acid.* During the convulsion the head descended a little; but made no further progress until 8 o'clock, when she was attacked with another fit. She was again bled from the arm; and as the external parts had become relaxed, Dr. Lever delivered her of a living child, by the forceps. *The urine continued albuminous for twenty-four hours after the first attack of convulsions; but there was no return of fits after her delivery. She rapidly convalesced.*"

Upon inquiry, I could not ascertain that this patient had suffered from any cedematous swellings before her confinement; but for two or three days she had complained of pain in the head, accompanied with some torpor, and unusual obtuseness of intellect.

#### CASE 9.

*Second Confinement—Convulsions after Delivery—Urine Albuminous—Mother recovered—Child born alive.*

ELLEN D —, who was attacked with convulsions in her first confinement (see Case 5), was delivered, on the 25th October 1842, of a living male child, by Mr. Woolnough. He left her at 1 P.M. conscious: her pulse 75. At 4 P.M. he was called to her, and found that in the intervening three hours she had had several convulsions. Her pulse was 110, full: she was totally insensible. She was bled to 20 ounces, and took the mist ant. pot. tart. (gr.  $\frac{1}{2}$ ), every half hour. The head was kept cool by an evaporating lotion, and mustard cataplasms were applied to the feet. *The urine, which had been drawn by the catheter, became milky, both upon the application of heat and nitric acid.* From this period the convulsions ceased, and she convalesced; her recovery being retarded by a distressing cough.

*The urine did not entirely lose the albumen until November 3.*

#### CASE 10.

*Ninth Pregnancy—Child Still-born—Mother died—Inflammation of the Membranes of the Brain.*

C. A —, aged 32, married, and has borne eight children; of intemperate habits; sanguineous temperament, and very corpulent. On the morning of January 5th, her attendant, Mr. Cotton, was sent for. She had been out on the previous evening to make some purchases, and had indulged rather freely in drinking: she was found sitting on her bed, rather excited, but sensible: she gave rational answers to the questions put to her. She complained of violent pain in the head, which had been troublesome for a week; and her pulse was much accelerated. To relieve the headache, she had the previous day applied a blister to the nape of the neck; and on the morning of the



day on which she was seen, three leeches to her temple. There were no labour-pains; neither were there any symptoms of labour apparent to Mr. Cotton; but as she stated she had lost a considerable quantity of blood, he fetched me from the hospital, to see her. When we entered her room, we found her lying on the bed, comatose; her pupils dilated: her head was hot: in a very few minutes she was attacked with an epileptic convulsion, marked by the usual symptoms. The hair was removed, and cold affusion employed. She was bled to  $\frac{3}{4}$ xxx: a glyster was thrown into the rectum, but not retained. About half-a-pint of urine was abstracted by the catheter: this, when examined by heat and nitric acid, afforded no traces of albumen. On vaginal examination, the os uteri was found opened to the size of a half-crown-piece, and very dilatable: the head presented. It was deemed advisable to complete the labour by the operation of turning; and the patient being placed in the usual position, version was readily accomplished, but the proper remedies, diligently employed, failed to resuscitate the child. The uterus contracted well, and expelled the placenta in twenty minutes: this organ was flabby; more dry than usual; and in it there were many deposits, giving it the appearance of hobnailed liver. For two hours the convulsions recurred, with increasing intensity, and the intervals between these attacks were shorter. As the patient was in a dreadfully destitute condition, it was deemed advisable to remove her to the hospital. At half-past 2, when admitted, the heat of the head was increased; the pupils were inobedient, dilated; the left larger than the right: respiration stertorous; pulse small, and thready; extremities warm. In about a quarter of an hour after her admission, she had another slight fit: the mouth was drawn to the right side: she took two deep inspirations, and suddenly and quietly expired.

POST-MORTEM EXAMINATION.—The body was examined twenty-four hours after death, by Mr. King. "The arachnoid above was opaque, tumid, and yellowish, being raised by a large quantity of turbid water in the pia mater. The dura mater on the right hemisphere was lined by a soft pale red tumid arachnoid; that of the left side incipiently so. The disease of all the membranes was most visible on the right side. The base was similarly affected. The brain was pale: there were four or five drachms of milky fluid in the ventricles: the lumbar arachnoid was slightly clouded: the heart was flabby; the right side contained large dark coagula: the liver was pale, soft, of clear texture, seeming (only) fatty: the spleen was tumid, and much softened: the kidneys gave out much blood, but were not dark; their texture coarse and flabby: the uterus was larger than a child's head, white and pudding-like: the left end of the stomach was digested, and ecchymosed."

This woman was talking to a friend in her room five minutes before she was attacked with the convulsion which left her in that comatose state in which she was found by Mr. Cotton and myself, and from which state of insensibility she never rallied. When did the cerebral effusion take place? Was there any effusion before the convulsion? Did all these evidences of cerebral disease display themselves in three hours?

CASE 11.

*Primipara—Convulsions—Delivered by Forceps—Emphysema—  
Death—Child alive—Urine albuminous.*

To JULIA C——, a short stout Irishwoman, of sanguine temperament, plethoric habits, married, and about eight months advanced in pregnancy, Mr. Hewitt was suddenly called, on June 23d. The account he received from the mother was, that for some days the patient's bowels had been constipated; that for 48 hours she had complained of considerable pain in the head, and her face had been alternately flushed and pale. At 4 A.M. she had taken a dose of salts and senna, but soon vomited it: at 9 A.M. she was seized with a convulsion: her lips were livid: eyes fixed; mouth distorted, and covered with foam. Although much alarmed, her friends did not send for Mr. Hewitt for three hours; during which time she had several returns of the fits, and had been perfectly insensible during the intervals. Mr. Hewitt found her comatose: her skin was cool; her countenance placid; breathing tranquil; the pupils slightly dilated, but obedient to light: the pulse was 100, full, and bounding: she was perfectly unconscious, all attempts to rouse her being ineffectual. V. S. ad  $\frac{3}{4}$ xxv. was practised, when the pulse became rapid and fluttering. As the arm was being tied up, she had another most violent fit, during which the pupils became dilated. The hair was removed from the scalp; an aperient glyster immediately administered; and liq. ant. pot. tart.  $\mathfrak{z}$ i. was given every half hour. On vaginal examination, the os uteri was found dilated to the size of a shilling, with a thin sharp edge; and the head presenting. From this time until half-past 2 P.M. the fits continued at intervals of about half-an-hour. Twenty ounces more blood were abstracted from the arm, and she continued the tartar emetic. The os uteri became soft and dilated; and labour was evidently progressing. Between the fits, the patient rolled about the bed and moaned: this was apparently caused by the uterine efforts. At half-past 3 the fits still recurred, and more frequently:  $\mathfrak{z}$ viii. of blood were taken from the temporal artery. At 5 o'clock P.M. I delivered her with the short forceps; but previous to their introduction, the bladder was emptied by the catheter: the urine, when examined, proved to be *highly albuminous*, of the sp. grav. 1010. The uterus

contracted well, and soon expelled the placenta. Very soon after delivery, the patient had a fit, again repeated in half-an-hour: at the termination of the latter, the heart's movements and respiration were completely suspended for several actions, and were but very slowly re-established. At 8 P.M., finding the pulse full and rapid, and the fits as violent and more frequent, I ordered,

V. S. ad  $\text{xxxiv}$ .

Ant. Pot. Tart. gr.  $\text{ss}$ . omni horâ; et Hyd. Chlorid. gr.  $\text{x}$ . stat.

Ice was kept constantly applied to the head; and the antimony was given every hour, until 4 A.M. on Friday morning, when the convulsions ceased altogether: there having been twenty fits after delivery, and about seventeen before. The antimony was continued at intervals of three hours. The calomel produced several stools; which, together with the urine, were passed involuntarily: the pulse was 130, small and compressible. A blister was ordered to the nape of the neck, and sinapisms to the soles of the feet. At 6 P.M. she was exceedingly restless; and so violent, that it was deemed necessary to confine her arms and legs: half-a-pint of urine was drawn by the catheter, which, tested by heat and nitric acid, *did not coagulate*. Two grains of calomel were given, with the quarter of a grain of tartar emetic; and as the blister had been rubbed off, another was applied to the nape of the neck. At 1 A.M., Saturday, she suddenly exclaimed, "Give me a drink of water!" At 10 o'clock she was quite conscious, and able to recognise every one in the room: complained of pain in the forehead: her pupils were natural: respiration tranquil: pulse 130: the right cheek, and right side of the neck, were emphysematous.

Hyd. Chlorid. gr.  $\text{ss}$ . 4tis horis superbibendo.

Liq. Ant. Pot. Tart. m  $\text{xxv}$ . Sp. Æth. Nit.  $\text{z}$   $\text{ss}$ . ex Julep. Ammon.

Acet. et Mist. Camph.  $\text{āā}$   $\text{zss}$ .

She was ordered sago; and the refrigeration of the head was maintained by the ice.

At 11 P.M. the emphysema had considerably increased: the breathing was oppressed. Incisions were made on each clavicle, and a roller was placed around the chest.

Sunday, 9 A.M. The breathing much more tranquil; the bowels have been opened three times; the gums swollen and tender.

Omit. Hyd. Chlorid. et Liq. Ant. Pot. Tart.

Monday, the bandage was removed, and the chest examined. The whole of the lungs were very resonant on percussion, anteriorly; puerile respiration at both apices; at other parts, great deficiency of respiration; and the inspiration, especially posteriorly, accompanied with a wheeze: no decided *craquement*. On listening over the

anterior mediastinum, and causing the patient to hold her breath, a crackling was heard synchronously with the heart's systole. The patient continued in about the same state until Friday. The skin was tolerably cool; the tongue moist; the bowels open; but there was an almost constant contraction of the flexors of the thumb. Beef-tea and arrow-root were ordered. On Friday evening, diarrhœa supervened, accompanied with considerable tenesmus: the skin was hot, the face flushed; and the pulse became rapid, but readily compressed. A starch enema, with syrup of poppies, subdued the tenesmus, and the bowels were controlled by the mist. cret. comp. On Monday she was decidedly worse (her relations having given her kidneys and porter); her face was flushed; the surface of the body hot, and harsh; the conjunctivæ injected; and the edges of the eyelids were covered with viscid secretion: the pupils were contracted; the eyebrows knitted; the gums tender; the tongue red and dry; bowels opened twice in twelve hours; the pulse rapid and feeble.

Liq. Ant. Pot. Tart. ℥iv. Jul. Am. Acet. Mist Camph. āā ℥iv.  
ft. mist. cujus cap. coch. ij. amp. 4tis horis.

On Tuesday she was reported to have coughed frequently, without expectoration; the surface of the body still very hot; conjunctivæ as before. From this time she sank gradually, and died on Saturday, at 4 A.M.

No post-mortem examination was permitted.

#### CASE 12.

*Unmarried—Primipara—Convulsions supervening after delivery—  
Child living—Mother recovered—Urine albuminous.*

Reported by Mr. HARDY.

M. S —, aged 18, of middle stature, stout, but pale, unmarried, was taken in her first labour at 1 A.M. of September 12th. At half-past 2 P.M. the os uteri was dilated to the size of a shilling. For the next four hours the pains were neither strong nor frequent. At half-past 8, their strength and frequency returned, and continued until half-past 10, when a living child was expelled; followed, in a quarter of an hour, by the secundinea. In half-an-hour after delivery this female was suddenly seized with a convulsive paroxysm, followed quickly by a second and third.

V.S. ad ℥xl.

Cap. abrad.; et Lot. Evap. Spirit. const. applic.

Hyd. Chlorid. gr. x. statim; et Mist. Ant. Pot. Tart. ℥i. omni  
2dâ horâ.

In two hours, the pupils, which had been dilated, obeyed the stimulus of light. Her bowels were loaded with fœces, and the enema terebinth. was administered. The urine, which was drawn from the

bladder by the catheter, was acid and *highly albuminous*, of the sp. gravity of 1005.

From this time she had no more convulsions; although she complained for several days of heaviness and pain across the forehead, which was relieved by the local abstraction of blood. Her gums were swollen; her breath fetid; and her tongue covered with vesicles, although but 10 grains of calomel were administered, and these at one dose at the commencement.

The urine, drawn twelve hours after her delivery, was high-coloured, sp. gravity 1020; and contained *albumen*, although its quantity was less, compared with that abstracted at the period of the fits. This secretion was rigidly examined from time to time; and evidence of its containing albumen became fainter and fainter, until it entirely ceased, thirty-six hours after her delivery.

For three or four months previous to her confinement, this girl was in the habit of taking considerable quantities of ardent spirits.

#### CASE 13.

*Primipara—Convulsions—Twins—Forceps—Turning—Urine albuminous—Mother recovered—Children alive.*

H. R.—, aged 33, a strong healthy young woman, unmarried, sent for her medical attendant at 8 P.M. on Nov. 13. He found she had been suffering from spurious irregular pains since the Thursday previous. Upon examination, the os uteri was found high in the vagina, of the size of a sixpence: its edge sharp and cutting, but dilatable. At 2 A.M. on Nov. 14th, examination was again instituted. The mouth of the womb had dilated considerably: the head presented, and the pains continued strong and vigorous. At half-past 3 their duration was lessened: they recurred at irregular intervals; and between the periods of their occurrence the patient dozed. At 5 A.M. the head was engaged in the pelvic cavity: the perinæum was not distended, but was rather thick and unyielding. At half-past 6 the pains entirely ceased; when the patient suddenly became unconscious; her eyes fixed and staring; the pupils alternately dilated and contracted; and the pulse was strong and labouring. Her attendant, Mr. Cotton, bled her to  $\text{ʒviii}$ ; and when this quantity of blood was abstracted, she complained of faintness. Having been sent for, I had scarcely entered the apartment when she was attacked with a severe convulsion: her features were distorted; the head was thrown back; the limbs stretched and rigid, and the eyes fixed and staring: the vein was again opened, and about a pint of blood was drawn, in a full stream, until the pulse became small, soft, and compressible. The catheter was introduced, and a pint of urine was drawn off. By means of the forceps, I succeeded

in delivering the first child. After waiting for half-an-hour, without any effort at expulsion becoming manifest, I determined to perform the operation of version: this was accomplished with facility. The uterus contracted well, and the secundines were expelled naturally. When she was left, at half-past 9, she was conscious; complained of a weight on the forehead, and of the loss of her sight. Pulv. jalap  $\bar{c}$ . hyd.  $\bar{\text{O}}$ i. was ordered, immediately to be followed by an enema. At 11 she had another convulsive fit, during which a severe wound was inflicted on the tongue. Twelve leeches were ordered to the temples; the head to be shaved; and a cold refrigerating lotion kept constantly applied. The liq. ant. pot. tart. was ordered, in half-drachm doses, every four hours. At 4 P.M. Mr. Cotton was called to this patient, who was attacked with another convulsion more violent than either of the preceding: he found her in a semi-comatose state: the leeches, which had not been applied, were immediately placed upon the temples; her pulse was 92. At 7 P.M., about a pint and a half of turbid urine was drawn off: at this time she answered questions rationally, and could both see and hear distinctly. The bowels not having been relieved, the enema terebinth. was immediately administered.

Nov. 15, half-past 7 A.M. Has passed a good night: the pain in the head lessened: the urine, drawn by the catheter, has the well-known odour communicated by the turpentine administered on the previous evening. Pulse 80, soft. From this time she gradually recovered; and the report on the 30th is, "Quite convalescent."

The following particulars, shewing the character and quantity of urine, are interesting:—

	Sp. G.	Effect of Heat.	Nit. Acid.
Water taken away before the } delivery of the first child }	turbid, 1017	milky,	very coag., acid.
6 hours after delivery,	cloudy, 1022	flocculent,	coag., acid.
24 . . . . .	clear, 1010	turbid,	turbid, very acid.
36 . . . . .	clear, 1004	none,	none, acid.
72 . . . . .	dark col. 1007	none,	none, very acid.

QUANTITY OF URINE.

Nov. 14th. Before delivery of the first child, one pint was drawn off.  
At 7 P.M. . . . . one pint and a half.  
15th. At half-past 7 A.M. . . . . one pint and a half.  
At 1 P.M. . . . . two pints.

Thus, in twenty-eight or twenty-nine hours six pints of urine were abstracted.

## CASE 14.

*Second Confinement—Forceps—Mother recovered—Child born dead.*

M. F——, a short stout woman of light complexion, was delivered of a six-months' child in October 1841. At 2 A.M. October 4th, 1842, Mr. Rubidge was summoned to her in her second labour: the pains had commenced at 10 o'clock on the previous evening, but during the last hour had greatly increased in severity: at the same time, their duration had augmented. On examination, the os uteri was found to be about one inch in diameter, and rigid. She complained of headache, and vomited frequently. Pulse 95, full and hard. The pains continued severe and frequent; but the os uteri dilated but slowly. At half-past 5 A.M. she was suddenly seized with a violent convulsion, and the fits continued to recur with but little intermission until 7 o'clock. During this time,  $\frac{3}{4}$ xx. of blood were abstracted from the arm, and a tea-spoonful of the liq. ant. pot. tart. administered every quarter of an hour. The os uteri became relaxed, but the pains were feeble. At half-past 7, Dr. Oldham delivered with the forceps. The child was still born, and the cord was empty and contracted. Cold evaporating lotion was continually applied to the head. At 1 P.M. she complained of severe headache, and some abdominal tenderness. Pulse 140, and jerking: pupils dilated. Enema ol. ricini stat. injiciend.

5th. She was reported to have slept well; there had been no return of convulsions; her bowels had been freely opened: pulse 90. From this time she rapidly convalesced, and went into the country on the 14th.

Her urine, which was abstracted by the catheter at the time of her delivery, was of sp. gr. 1010, slightly acid: it became *very flocculent* upon the application of heat, and when nitric acid was added. This coagulability of the urine disappeared gradually; and on October 8th the appearance and character of the excretion were perfectly normal. This patient had suffered from slight puffiness of the eyelids, and oedema of the legs and feet, previous to her delivery.

**Ratio of Mortality.**—(1. To Mother.) From these Reports it will be seen, that out of fourteen cases of Puerperal Convulsions two only were fatal. Drs. Hunter, Lowder, &c. former Teachers of Midwifery, were accustomed to state, in their Lectures, that this disease proved fatal in more than half of the cases attacked. Dr. Parr, in his Medical Dictionary, gives even a worse picture than this. But the results of the disease may be gathered from the following Table:—

	Cases of Convulsions.	Mothers Lost.	Prop. Per Cent.
Dr. Bland . . . .	2	0	—
Mr. Perfect . . . .	14	5	35·7
Mr. Gifford . . . .	4	2	50·
Dr. John Clarke . .	19	6	31·5
Dr. Smellie . . . .	8	2	25·
Dr. Merriman . . .	36	8	22·2
Dr. Ramsbotham . .	26	10	38·4
Dr. Maunsell . . . .	4	2	50·
Dr. Collins . . . .	30	5	16·6
Dr. Beatty . . . .	1	—	—
Dr. Churchill . . .	2	—	—
Mr. Mantell . . . .	6	2	33·3
Dr. Lever (Guy's) .	14	2	14·2
Total . . .	166	44	26·5

Thus it will be seen, that out of 166 cases of convulsions, 44 women died, or 26·5 per cent. If the fourteen cases recorded in this Paper be omitted, the number of cases will be 152, and the number of deaths 42, or 27·6 per cent.; while the cases attended at the Lying-in-Charity of Guy's Hospital have proved fatal only in the proportion of one in seven, or 14·2 per cent.

(2. To Children.) The fourteen women gave birth to fifteen children; eleven of whom were born alive, and four still-born. Of the four still-born, two were delivered by the operation of turning; one by the employment of the forceps; and the other was a case of partial presentation of the placenta, in which the child descended with the feet forwards.

**Cases of Labour, and Method of Delivery.**—In seven cases the children were born by the natural efforts; in three, the forceps were employed; in two, the operation of turning was resorted to: in one case there were twins, the first of whom



was delivered by the forceps, the second by the operation of version; and in the last there was a partial presentation of the placenta.

Nine of the women were married, and five unmarried. Of the fourteen women, eight were primiparæ, and six had been previously confined.

Dr. Ramsbottom, sen., is of opinion that "women with large families are equally or perhaps more liable to be assailed;" but of twenty-one cases of convulsions recorded by him, in which the number of the pregnancies is stated, there are only two cases in which the pregnancy is not the first, with the exception of those instances in which the children were born prematurely at the sixth or seventh month. In five cases out of twenty-six, he has omitted to mention whether or no they were first pregnancies. Of nineteen cases recorded by Dr. Clarke, sixteen were first children; twenty-eight out of thirty-six, recorded by Dr. Merriman, were first children; and of thirty related by Dr. Collins, twenty-nine were first children.

In two of the cases, convulsions supervened before labour was established; in ten, they occurred during the progress of the labour; and in two, they did not exhibit themselves until after the birth of the child and the expulsion of the secundines.

Some writers, as Drs. Smellie and Denman, have imagined that this disease is, in a great measure, influenced by atmospheric causes. Andral is of opinion that the disease is probably connected with an electrical condition of the atmosphere, acting primarily on the nervous system, and producing cerebral excitement.

Through the kindness of Mr. Robertson, Assistant Librarian of the Royal Society, I have been enabled to insert the following Table, shewing the state of the weather upon the days each of the fourteen cases of convulsions was attacked.

CASE	9 A.M.		3 P.M.		EXT. THERMOMETER.				DIRECTION OF WIND.	STATE OF WEATHER.
	Barom.	Alt. Therm.	Barom.	Alt. Therm.	Fahrenheit.		Self Regs.			
					9 a.m.	3 p.m.		9 a.m.		
1.	29.677	46	29.386	49	47	52	41	53	S. W.	Cloudy; high wind.
2.	29.814	55	29.855	58	53	61	47	61	S. W.	Cloudy; light wind.
3.	29.688	40	29.710	42	38	43	35	44	N. E.	Light clouds; wind.
4.	30.304	79	30.278	61	51	57	44	64	N. W.	Light clouds; wind.
5.	29.372	27	29.378	28	26	28	24	26	N.	Overcast; light rain, freezing in falling.
6.	29.642	49	29.732	50	46	47	47	50	N.	Wind and rain.
7.	29.462	40	29.252	41	43	46	34	44	S. E.	Wind and rain.
8.	29.940	50	30.086	51	46	51	43	56	W.	Cloudy; brisk wind.
9.	30.018	69	29.934	71	66	76	59	76	S.	Cloudy; light wind.
10.	29.896	77	29.882	69	62	68	53	78	W.	Fine; light clouds and breeze.
11.	29.844	61	29.882	63	60	63	56	65	N. W.	Fine, but windy.
12.	30.096	52	30.098	53	50	54	45	59	N. N. W.	Fine.
13.	30.312	52	30.286	53	51	54	49	54	W.	Wind.
14.	29.720	50	29.804	51	47	47	46	55	W.	Fog and wind.

*Condition of the Urine.*—In the first four cases here recorded no mention is made of the condition of the urine, for our attention was not at that time directed to the investigation of this secretion. In the fifth case, Mr. Woolnough, my late colleague Mr. Twcedie, Dr. Gull, as well as myself, particularly noticed the great similarity that presented in her appearance and that of patients labouring under anasarca with the Morbus Brightii; and it was with this view that we proceeded to examine the condition of her urine.

At first, I was induced to believe that it was merely a case of pregnancy occurring in a woman affected with granular degeneration of the kidney; but as the traces of albumen became daily more faint, until they entirely disappeared on November 3, I was led to suppose that the albuminous condition of the urine depended upon some transient cause probably connected with the state of gestation itself.

To settle this point, I have carefully examined the urine in every case of puerperal convulsions that has since come under my notice, both in the Lying-in-Charity of Guy's Hospital and in private practice; and in *every case, but one*, the urine has been found to be *albuminous* at the time of the convulsions. In the case (10) in which the albumen was wanting, inflammation of the membranes of the brain, with considerable effusion, was detected after death. I further have investigated the condition of the urine in upwards of fifty women, from whom the secretion has been drawn, during labour, by the catheter; great care being taken that none of the vaginal discharges were mixed with the fluid: and the result has been, *that in no cases have I detected albumen, except in those in which there have been convulsions, or in which symptoms have presented themselves, and which are readily recognised as the precursors of puerperal fits.*

Several obstetric writers have remarked that œdema of the face and extremities predispose to convulsions. M. Dugés, at p. 238, says, "On l'observe plus particulièrement chez les femmes encientes qui sont affectées d'une anarsaque considérable des membres inférieurs, surtout si l'infiltration se propage aux membres supérieurs et à la face." I. T. Oslander considers a swollen condition of the face and hands as premonitory of the attacks. Velpeau, at p. 51 of his Treatise

"Des Convulsions chez les Femmes," says, "L'infiltration des membres pelviens surtout est une autre cause d'éclampsie:" and again, "J'ai la conviction, que les femmes infiltrées sont fortement exposées aux convulsions." Dr. Montgomery, at p. 6 of his "Signs and Symptoms of Pregnancy," after relating the case of a lady, in whom, "about the middle of the eighth month of pregnancy, the feet and legs began to swell," says, "when this latter form of œdema takes place, it ought to claim our most serious attention, as it is connected with a state of the vascular system, which, if active depleting measures be not previously adopted, will probably give rise to convulsions at the time of labour:" and of which the case of this lady was a well-marked instance.

In reply to a Letter I addressed to the Doctor, he states, that "it had never occurred to him to investigate the condition of the urine in these cases; but from the state of the system, under the circumstances, he thinks such a condition of the urine extremely probable." Dr. James Reid also, in his Report of Parochial Lying-in Cases, extending from June 1840 to February 1842, and published in the London Medical Gazette, after detailing a case of convulsions occurring in a strong robust woman, in whom "the legs were very œdematous, and the labia also very much enlarged," says, "I have known this state of the system to precede an attack of puerperal convulsions, in several cases." From what I have seen in public and private practice, I am led to the conclusion, that cases of convulsions complicated with an albuminous condition of the urine are divisible into two forms: in the one, the urine is *albuminous during pregnancy*; and there are external evidences, as shewn in the œdema of the face, eyelids, hands, &c. In such cases, the convulsions will be more violent, and will last for a longer time after delivery. The urine also retains its albuminous properties for a longer period than in the second form, or that in which the urine becomes *albuminous during the labour*. In this variety, the urine contains less albumen; the fits are less violent; seldom re-appear after delivery has been completed; and if they do, it is in a milder form, unless complicated with some lesion of the brain. The urine, in this form, very speedily loses all traces of albumen after labour is completed. Mr. Robinson,

in doses sufficient to put the system under its nauseating influence, so that, by its agency, the return of the fits will be prevented, or, if not prevented, their force and frequency will be diminished. It is sometimes necessary to combine this medicine with a small proportion of opium, to prevent irritation of the mucous lining of the bowels, and consequent diarrhœa. If its exhibition be persevered with for some time, it may give rise to an erythematous eruption.

*Purgatives.*—Purging is of great importance in puerperal convulsions. In cases where the presence of deglutition is impeded or lost, a dose of calomel, from ten to fifteen grains, mixed up with butter, should be placed upon the tongue, and this followed by a drop or two of croton-oil: at the same time, the action of the bowels should be promoted by an enema of soap, colocynth, or turpentine. It is no unusual thing to find large quantities of hard scybala evacuated, even though the bowels may have been daily relieved.

*Mercury.*—This medicine I now only employ as a purgative in combination with other aperients; and even when exhibited with this view, great caution must be exercised, as the system is very readily affected by mercury in puerperal convulsions attended with albuminous urine; and if once it be allowed to display its effects, the diarrhœa, insalivation, and consequent debility, are extremely distressing, as well as difficult to remedy.

*Question of Delivery.*—The facts stated in this Paper lead me to the conclusion, that where convulsions occur during parturition before the birth of the child, and are complicated with an albuminous state of the urine, it is advisable to complete the delivery as soon as consistent with the state of the patient herself and the condition of the parts through which the child has to pass.

And thus, while, on the one hand, I deprecate artificial dilatation of the os uteri (which may induce a convulsion)—while I am no advocate for rupturing the membranes, and the induction of premature labour—while I declare myself altogether opposed to incisions in the vaginal portion of the os uteri, as recommended by Velpeau—I do most strongly

recommend that delivery be resorted to so soon as the state of the parts will permit its accomplishment.

If the membranes be unbroken—if the os uteri be soft and dilatable—if the external parts be lax and moist—then version may be readily performed: but unless there are circumstances of great moment, calling for the immediate delivery of the woman, I would rather wait until the head of the child can be grasped by the forceps or vectis, and the delivery be, by their aid, accomplished.

REPORT OF CASES  
OF  
STRICTURE OF THE URETHRA,  
RETENTION, AND EXTRAVASATION.

TREATED IN GUY'S HOSPITAL FROM OCT. 1841 TO OCT. 1842.

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THE following Report contains the first series of Cases of Stricture of the Urethra, Retention, and Extravasation, treated in Guy's Hospital during a period extending from October 1841 to October 1842. The remaining cases on this subject will appear in the next Number.

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CASE 1.

*Stricture—Relieved.*

THOMAS SPARSHALL, aged 41: admitted into Stephen Ward, October 7, 1841, under Mr. Cooper: by trade a rope-spinner; a healthy but not very temperate man. Has been married to a second wife about seven years. Had gonorrhœa about eighteen years ago, but not since. A short time previous to his second marriage his water began to pass in a diminished stream, and the difficulty of micturition has been gradually increasing ever since; sometimes, however, being better, sometimes worse, according to his indulgence in drink. For the last year he has suffered very much; and often voided his urine only in drops, accompanied with great straining and pain. His water is, in general, tolerably healthy, sometimes turbid. For a considerable time, coïtus has been accomplished with great pain, and without emission. On examination, there was found an impermeable stricture at the bulb.

*Treatment.*—Caustic to be applied every other day; warm-bath twice a-week; M. M. ē M. S. p. r. n.

Oct. 22. Mr. Cooper introduced No. 6. catheter into his bladder, after which he passed his water tolerably well. It was again introduced on the 24th; and in the night he was seized with severe rigor and fever.

25. He was suffering from constitutional irritation. There was

considerable difficulty in passing No. 6. through the stricture, which, however, appeared to be of very short extent.—Ordered,

Saline Mixture with Spir. Æth. Nit. and Hyoscyamus.

Oct. 26. Is better: passes his water without difficulty.

28. Going on well.

Nov. 6. Left the hospital in tolerable condition.

#### CASE 2.

##### *Stricture, with Perineal Fistula—Cured.*

MATTHEW HAYES, aged 35: admitted into Stephen Ward on October 27, 1841, under Mr. Cooper: a labourer; has led a very intemperate life, and indulged much in sexual intercourse. Been married nine years, but his wife lately died. About twelve years ago had gonorrhœa, which was cured in about two months with copaiba: shortly afterwards he again contracted gonorrhœa, and had a bubo, for which he was in Guy's Hospital; the discharge, however, soon stopped. Since then he has passed his water in a diminished stream, and has continued to get worse. Between four and five years ago, after great intemperance, an urinary abscess formed in the perinæum, which broke, and allowed a part of his water to pass through the opening for three months, when it healed. He continued to pass his urine through the natural passage, but in a slender stream, until June last, when he was admitted into Stephen Ward with a fresh perineal abscess, which opened in a few days, and again allowed the escape of his urine by the fistulous opening: he however left the hospital in two weeks, before any instrument could be introduced; and he has since continued to pass his water both ways.

Since his admission, the treatment has been, fomentations, diluents, calomel and opium. The catheter was introduced daily down to the stricture. In about two weeks a full-sized catheter could be passed into the bladder.

Nov. 18. He now passes his water in a good stream, and the opening is rapidly closing up.

Left the hospital on November 24.

#### CASE 3.

##### *Stricture—Caustic Bougie—Retention—Symptoms relieved.*

JOHN FORD, aged 31: admitted into Stephen Ward, on October 27, 1841, under Mr. Cooper: a labourer; is unmarried, of sober habits and good health. Had gonorrhœa about two or three years ago; some months after which an abscess formed in the perinæum near the rectum: this broke, and left an opening, through which, for about two months, he passed as much water as through his canal. It healed up, and he then began to pass his water in a diminished stream. For



the last six months the stream has been very small: he has had much straining, great intolerance, and, during sleep, has voided his urine involuntarily. No instrument has ever been passed. Since his admission he has had the caustic bougie applied every other day; and on November 15, he could hold his water better, and pass it in a larger stream.

*Nov. 20.* Had entire retention during the night, probably from the too free use of the caustic. His water was drawn off in the bath by the dresser.

22. It appears, on inquiry, that the catheter was not passed into the bladder, but merely down to the stricture, and retained there some time; after which he was enabled to get rid of his urine. The same has been repeated twice a-day since, without which he has retention.

25. Improving; and only requires the catheter to be passed down to the stricture once a-day to enable him to void his urine.

28. Mr. Cock examined him, and passed No. 1. catheter into the bladder, which was kept in for some hours.

29. Much better, and passes his water in a tolerable stream.

30. Mr. Cock again passed No. 1, but with more difficulty than before, the canal having been irritated by unsuccessful attempts in the interim.

*Dec. 11.* He appears to be gradually getting worse, probably owing to the irritation produced by the repeated attempts made to pass the catheter.

21. The caustic bougie has again been had recourse to; the repeated use of which, together with unsuccessful attempts to pass an instrument, appear to be producing mischief.

28. No instrument could be passed. He was ordered sarsaparilla and iodine for mercurial rheumatic pains in the lower extremity.

*Jan. 31.* Had conjunctivitis of right eye, with great chemosis: conjunctiva scarified.

*Feb. 2.* Eye much better, as also the pains in the limbs. The use of the catheter and the caustic bougie has been abandoned for the last few days, and he makes water better since the omission.

Left the hospital on February 12, passing his water tolerably well.

This patient was re-admitted into Stephen Ward, under Mr. Key, on March 30, 1842. He had been gradually relapsing into his former state of difficult micturition, with diminished stream, since he left the hospital, but had had no retention. Mr. Key attempted to introduce a catheter, but without success. Ordered,

M. M. ē M. S., and warm-baths.

*April 20.* A small catheter was passed into his bladder.

30. Improving; and No. 4. can now be passed.

*May 20.* His canal now admits No. 7 ; and he complains of nothing but irritable bladder and intolerance.

*June 20.* Went out well.

*May 10, 1843.* Has continued quite free from urinary difficulty.

#### CASE 4.

##### *Stricture—Retention—Extravasation—Urethra laid open—Severe Constitutional Symptoms—Death.*

DUKE GOSLING, aged 54 : admitted into Cornelius Ward on November 3, 1841 : by occupation a bricklayer, of intemperate habits, or, rather, accustomed to drink gin to ease his water: married twenty-five years, during the whole of which time has had stricture, which followed a severe attack of gonorrhœa. He has not been under medical treatment, nor has he suffered much from the disease till last week, when, from intoxication and exposure to cold, the stricture became worse, and terminated in a total retention of urine on the morning of the day of his admission.

The bladder is extremely distended ; the countenance anxious ; pulse quick and irritable ; and he states that he is in great pain. Mr. Callaway saw him soon after his admission, and succeeded, with some difficulty, in passing a catheter : it caused the man great pain, and a large quantity of water was drawn off. The catheter was retained for the next twelve hours, when it was withdrawn. The man, however, could not pass a drop of water by natural efforts, and it was necessary to re-introduce a catheter. His countenance was still anxious : the tongue furred, and brown in the centre : pulse about 95 : skin hot and dry : urine scanty, high coloured, and ammoniacal. Ordered,

Mist. Effervesc. 4tis horis. Calom. gr. ij. Opii. gr. fs. statim.

The catheter was again passed, with some difficulty, in the evening.

*Nov. 4.* The catheter is passed night and morning, causing him, however, great pain : the symptoms continue much the same.—Ordered, warm-bath ; belladonna to the perinæum ; and afterwards twelve leeches to be applied.

5. Has passed a restless night : in the morning he was seized with sickness, and great pain over the lower part of the abdomen. His countenance is extremely anxious : pulse very quick and small : tongue dry and brown : skin bedewed with a clammy perspiration : scrotum and perinæum dark coloured, but not swollen or particularly tender : abdomen distended, tense, and very tender all over.

Cal. gr. ij. Opii gr. fs. 4tis horis.

Ammon. Sesq. ℥i. Tinct. Hyosc. m xxv. Mist. Camph. ℥fs.

̄ Succ. Limon. in stat. effervesc. ter die sumend.

The catheter could not be passed; and he is getting very low and weak.

Mr. Callaway opened the urethra from the perinæum; and introduced a female catheter, with which the water was drawn off. He then passed a silver catheter into the bladder, where it was fixed.

Fomentations over the belly.

Tinct. Opii ʒss. ex Julep. Ammon. statim.

Liq. Op. Sedat. m. v. Ammon. Carb. gr. vi. Spir. Æther. Sulph. C. m xx. Tinct. Cinch. ʒss. Syrup. Aurant. ʒi. 4tis horis.

In the evening he was relieved, and altogether rallied, from the exhibition of brandy and other stimulants; but seemed to suffer great pain from the catheter, especially when it was depressed to draw off his water, which was dark-coloured and somewhat ammoniacal.

He afterwards became sick, and could keep nothing on his stomach.—Was ordered a mustard poultice to the scrobiculus cordis, and some gin instead of brandy.

Nov. 6. Constitutional symptoms not relieved: some tenderness over lower part of the belly: seems weaker.

7. Extremely low, but otherwise better as regards the constitutional symptoms: tongue moist; and he retains food on his stomach. The catheter remains in the bladder.

He died in the night. No inspection allowed.

#### CASE 5.

##### *Retention of Urine, from Perineal Abscess—Cured.*

JAMES KIRKPATRICK, aged 25: admitted into Stephen Ward, No. 29, on November 3, 1841, under Mr. Key: a cutler by trade, and has lived in London during the last two years: is married, has a slight cough, and looks phthisical: of irregular, dissipated habits. After having spent the previous fortnight in nearly a continued state of debauchery and drunkenness, during which he was not aware of having received any injury, he began to suffer from pain in the perinæum, tenderness, and the concomitant constitutional symptoms attending deep-seated abscess: at the same time, he had increased difficulty in passing his water; which, on his admission, nearly amounted to retention. There was no external evidence of matter being formed. He was ordered a warm-bath; leeches were applied to the perinæum, fomentations, &c.: an emetic was given him, after which he was purged, and antiphlogistics administered. The symptoms of retention became relieved; a swelling came forward; and on November 6th it burst spontaneously, discharging a considerable quantity of matter. All his symptoms immediately ceased, and he passed his water without pain or difficulty. He had not had stricture, or any

urinary affection, previously; and his retention appeared purely dependent on the presence of an abscess, probably between the rectum and urethra.

He left the hospital on November 8th.

CASE 6.

*Stricture, with Perineal Fistula—Improving.*

JAMES WRIGHT, aged 27: admitted Nov. 5, 1842, into Philip Ward: a bricklayer; is unmarried; of intemperate and somewhat dissipated habits; and is a pale, thin, nervous man. Between eight and nine years ago he had his first gonorrhœa, for which he took a great deal of medicine, but continued to have urethral discharge for more than a year. When the gleet ceased, he began to experience difficulty in micturition; and soon after, on getting tipsy, had total retention. This was relieved by catheter; and he continued to pass his water in a more or less dribbling stream, but without requiring surgical assistance, till six years ago, when he again had total retention, and was taken into St. Bartholomew's Hospital. An instrument could not be passed; and, after all means had been ineffectually tried, and the retention had existed for three days, his bladder was punctured above the pubes by Mr. Lawrence. An elastic gum catheter was retained in the opening for fifteen weeks; and before it was removed, a passage through the urethra was effected by means of Stafford's cutting instrument, used for seven successive days. An elastic catheter, without the wire, was then, with much difficulty, introduced, which he wore for nine days: the canal was then pretty free, and in the course of a few months became tolerably re-established. For some time after the removal of the catheter from above the pubes, a fistulous opening remained, through which some urine would pass when the bladder was distended; but it was closed by caustic and pressure, about seven months after the operation.

On leaving the hospital, he continued to pass an elastic catheter twice a week for three years, when he abandoned its use. For a few weeks he passed his urine tolerably well, and then the stream began again to diminish; until two years ago, while in Manchester, when he was obliged to apply to a surgeon, who introduced a catheter several times, till he could do it for himself. This continued till about seven months ago, when he was attacked with testitis, which was followed by a perineal urinary abscess, and he could no longer use a catheter. The abscess was opened; and a fistulous urinary passage has continued ever since, through which he has voided more or less of his water. At one period it closed up for a few days, and then re-opened.

His stream of water passes partly through the natural passage and

partly through the perineal opening, but more through the latter than the former. No instrument has been passed into his bladder since the abscess, although many attempts have been made, accompanied with great pain and bleeding. Has not had any sexual intercourse since the abscess; previously to which, coitus was generally accomplished with pain, and without emission. A few days prior to his admission he was attacked, while at Reading, with partial retention and great suffering: bougies &c. were attempted to be passed, but failed. He has now no urgent symptoms: an instrument passes no further than the bulb, and even the slightest pressure gives intense pain. There is considerable induration and tenderness about the urethra, at the bulb, and rather anterior to it. Ordered, warm-bath, and opening medicines.

Nov. 6. Mr. Cock examined him, and ordered him leeches and fomentations. The strictured part of the urethra was exquisitely tender. His general health tolerably good. He passes his water about every two hours, and can void it without straining or much pain.

8. Considerable relief from the leeches: passes more water by the penis, and less by the fistula. Ordered, *hirudines xv.*

10. Yesterday he suffered much pain from vesical irritation, pain about the bladder, extending to the right loin; and the water which he passed last night contained a great quantity of tenacious mucus, perhaps mixed with some pus. To-day his local and constitutional symptoms are much relieved. Mr. Cock ordered him

*Spirit Æth. Nit. 3 fs. Tinct. Hyosc. m xx. ex Julep. Pot. Cit. ter die.*

11. His water is still alkaline, but contains but little mucus. There is now not the slightest difficulty in passing a small elastic catheter into his bladder, by wearing which, as the irritation may allow, the canal will probably be sufficiently dilated to admit of the free passage of his urine.

Catheters were passed daily, which entered without any difficulty when the stilette was removed; and he was improving, the natural stream of water increasing, the artificial one decreasing.

He was turned out for bad behaviour on Nov. 19.

#### CASE 7.

##### *Stricture—Retention—Extravasation—Urethra laid open at the Perinæum—Recovery.*

DANIEL HICKEY, aged 24: admitted into Cornelius Ward, No. 7, on Dec. 4, 1841, late in the evening: a shopman; healthy, and tolerably steady: temperate in his habits: been married a year and a half. Four years ago he had gonorrhœa, which lasted nine months; and,

during this time, he struck his perinæum by a fall against a rail: he did not use any injections. About three years back he began to suffer from irritable bladder, and to void his urine in a small stream, especially after drinking. These symptoms increased after his marriage; and latterly he has only passed his water in a small stream, and with great straining: he has pain during coïtus, and difficulty of emission. He had no advice until the day before his admission; when, after drinking some ale, his water stopped altogether: he then had some medicine given him, but he only voided some drops of urine with great difficulty. This continued until the evening of the next day, when a surgeon was sent for to draw off his water, which he failed in doing, and sent him to Guy's. Attempts to pass a catheter proving fruitless, a full dose of opium was given him.

The next morning, Dec. 5th, extravasation had taken place in the perinæum and scrotum, up to the root of the penis and pubes, with great pain &c. Mr. Callaway cut into the perinæum, to let out the fluid; by which incision the urethra, probably distended, was opened, and the man passed his water at once and freely through the opening, being thus relieved from the retention. A catheter was then carried through the penis into the bladder, which was left in until the next day; when it gave great pain, and was removed, and he continued to pass his water through the wound.

*Dec. 7.* A female catheter was passed through the wound into the bladder, and left there.

8. Incisions were made into the scrotum, which was much swollen, and getting dark.

10. He is much better, is free from pain, and passes his water through the female catheter, which was to-day removed, cleaned, and replaced.

19. For the last week he has been wearing an elastic catheter in the urethra, through which he passes his water comfortably; and the wounds in the perinæum and scrotum are healing.

23. For the last three days he has been suffering from the effects of prostatic and vesical inflammation; and in consequence of the catheter having become obstructed with mucus and not properly attended to, the water has found its way out through a fistulous opening at the root of the penis. To-day the catheter was altogether removed.

30. Since the removal of the catheter he has daily improved, and now passes his water through the fistulous opening.

*Jan. 1, 1842.* Mr. Cock examined the track of the fistulous opening, and found that it communicated with the urethra, anterior to the bulb, and could easily be compressed between the thumb and finger: he was directed to do so whenever he passed his water.

*Jan. 5.* Is going out. The means employed effectually prevent the flow of urine through the false passage.

9. He called on Mr. Cock: he was quite well; and passed his water in a larger stream than he ever did in his life.

He afterwards attended as an out-patient under Mr. Cock, who has added the subsequent report of the case:—

28. An abscess formed in the fore-part of the scrotum, probably dependent on the irritation produced by a contraction of the urethra about four inches down, just behind which the fistulous opening, which is now closed, appeared to have communicated with the canal: perhaps there may have been a slight escape of urine, occasioning the abscess. Mr. Cock opened it; and passed No. 6, with some difficulty, through the stricture.

*April 30.* For several weeks he has passed his water with some difficulty and obstruction, which depend on a small tumor behind the scrotum, on the urethra just above the bulb. It is evidently a cyst with thickened walls, communicating with the canal, and becomes filled with urine during micturition. Mr. Cock had little difficulty in introducing a large catheter past it into the bladder: the rest of the urethra was tolerably healthy. After micturition, the urine, which had entered the cyst, passes away guttatim. He was directed to press the cyst during micturition.

*May 10.* Better; but there is a decided narrowing of the canal at the part: the swelling has greatly decreased.

13. Better: a small catheter passes easily.

*Oct. 8.* Passes his water tolerably well: the swelling still remains, but is smaller, and occasions neither pain nor inconvenience.

#### CASE 8.

##### *Stricture—Retention—Relieved.*

ASIA HEATH, aged 42: admitted into Cornelius Ward, on January 8, 1842. Has been married; but his wife has been dead nearly twenty years: was formerly at sea, but has for a long time followed the business of a carpenter: has lived steadily. Three years ago had gonorrhœa, which did not last long: no injections were used: soon afterwards he began to pass his water in a diminished and irregular stream, and to have occasional attacks of spasmodic retention. About a year and a half back he was admitted into Stephen Ward, under Mr. Key, for retention, and has since been obliged to have a catheter passed several times: the last time it was passed into his bladder was three months ago: an attempt was made three weeks back, which failed, although it relieved him for the time. He sometimes passes a tolerable stream, but at other times has great difficulty. For several days past has voided his urine with great difficulty, and for

the last twenty-four hours has only made a few drops at a time. Has been in the warm-bath, and the dresser has tried to introduce a catheter. Mr. Cock tried to introduce No. 2, but desisted, as it appeared to enter a false passage leading behind the prostate. There was no particular distention of the bladder; but he was suffering great pain, extreme irritation, and violent spasm of the muscles of the perinæum and anus. Ordered,

Opium gr. ij. Calom. gr. iij. statim.—Twenty leeches to the perinæum, and fomentations.

In three hours' time he had relieved himself by passing some water, and was nearly free from pain. As his bowels were somewhat confined, he was ordered ℥ij. of castor-oil, and was left for the night.

Jan. 9. Passed a quiet night: his bowels had just been opened, and he had voided urine in a better stream, and without pain. There is no distention or pain on pressure. As no severe symptoms existed, a catheter was not attempted to be introduced.

10. Gets rids of his water without any difficulty, although in a small stream.

13. Same as last report.

17. No attempt has been made to pass a catheter since his admission until to-day, when Mr. Cock introduced No. 1 without any difficulty.

19. Yesterday the dresser introduced No. 2 catheter. Inflammation and spasm appear to have been produced; and in the night he had total retention, which was relieved by the catheter. To-day he passes his water, but with some pain and difficulty. Has had leeches applied to the perinæum.

20, 9 P.M. Was passing his water in drops; and as retention was feared, Mr. Cock introduced a small elastic catheter without much difficulty, and left it in.

21. Mr. Cock re-passed the elastic catheter, and fixed it.

22. Has suffered no irritation from the presence of the catheter.

25. Catheter removed, and a larger one substituted.

31. Catheter removed yesterday evening; and he has since passed his water in a round stream, larger than he has done for the last six months.

Feb. 3. Going on well: no difficulty in the introduction of No. 5 catheter.

6. An elastic catheter, as large as the urethra would admit, has been introduced, and retained.

11. The catheter was removed, as it was producing urethral irritation and discharge.

21. Has since had another catheter introduced, which he wore for



a few hours. Passes his water in a good stream, but suffers from vesical irritation and intolerance.

28. Has worn No. 4 since the 26th, without inconvenience. Is rubbing belladonna-ointment into the perinæum.

March 2. A catheter, a size larger, was introduced yesterday, without any inconvenience. Left the hospital the week after.

Mr. Cock has furnished the following subsequent account of the case :

April 18. Has had no difficulty of micturition ; but within the last two weeks the stream has been getting smaller.—Passed No. 1, and a small elastic catheter, with great ease.

June 19. Has led a regular and temperate life since he left the hospital. For the last few weeks micturition has been getting more difficult, and with intolerance : he passes his water in small quantities. Has had retention since last night. Passed No. 2, and elastic catheter, with great ease.

July 27. Applied, early in the morning, at Guy's, with retention, and had a catheter introduced.

Sept. 11. Came to me in the evening, having had difficult micturition all day, and retention for some hours. Been drinking rather more than usual, and taking ale and gin yesterday. Passed a small elastic catheter without much difficulty : there was no great accumulation.

#### CASE 9.

##### *Stricture—Retention—Relieved.*

SOLOMON DARVIL, aged 45 : admitted into Cornelius Ward, on January 9, 1842, under Mr. Key : a labouring man : has worked on the railroad in Gloucestershire for three years, and for the last six weeks on the Greenwich road. Married thirteen years, and has had a family : is steady, and tolerably sober. Between fourteen and fifteen years ago had gonorrhœa for six months, but used no injections : ever since has had more or less urethral obstruction, the stream having gradually diminished up to the present time. Drinking stale hard beer, or any excess in liquor, brings on a difficulty in micturition. A year ago he had temporary retention ; which was however relieved without the catheter. For the last four or five years has suffered from intolerance, and has passed his water in a small feeble twisted stream with great effort and straining : has occasional pains in his loins. Was seized with retention on the 7th, and suffered greatly till the next day, when a surgeon attempted to introduce a catheter, but without success : he was, however, enabled to get rid of a little water, but continued in great suffering, occasionally voiding a few drops, until his admission. He then had a warm-bath and a

full dose of calomel and opium : but the retention continued until the evening, when Mr. Callaway introduced No. 2 catheter.

*Jan. 10.* His bowels have been opened, and he has passed a little water ; but the difficulty does not seem much relieved, and his bladder is still distended and tender. Leeches were ordered him ; after which, and after a good evacuation of the bowels, the dresser passed a small catheter without difficulty.

11. He is now free from pain and distress, although his bladder is still moderately full. Had a drachm of tinct. ferri sesquichloridi this morning ; since which he has voided rather more water, in something approaching to a feeble stream.

12. Improving.

16. No farther attempt has been made : he now passes his water without any difficulty ; and to-day a small-sized elastic catheter was introduced with ease, and retained for several hours.

Left the hospital *Jan. 22.* Passes his water with ease, and in a better stream than he has done for some years.

#### CASE 10.

##### *Stricture—Relieved.*

JAMES ROBERTSON, aged 44 : admitted into Naaman Ward, on January 1842, under Dr. Babington, for rheumatism, principally affecting the right hip and thigh. Mr. Cock saw him on January 11, in consequence of urinary difficulty. An emaciated unhealthy-looking man : was in the West Indies from 1819 to 1824, where he had yellow fever, ague, &c. &c., and was profusely mercurialized. Has led a dissolute intemperate life, and been greatly addicted to women : has had gonorrhœa and syphilis a great many times, and taken mercury over and over again, and used injections : he had syphilis for the last time a short period before his marriage. Was married six years ago : has had a family, and has been much steadier since, but indulged much in sexual intercourse. Has experienced difficult micturition, varying in degree, for between eight and nine years. For the last two years has passed his water, either in drops or in a very small stream, with great effort ; and has suffered from intolerance : water is generally clear : has phymosis : appears to be in a state of mercurial cachexia. Mr. Cock endeavoured to introduce a small catheter, No. 1, but was unable to get beyond the membranous portion. Ordered warm-bath, and to keep his bed.

*Jan. 12.* To-day he passes his water much more freely ; and with a little difficulty Mr. Cock succeeded in passing No. 2 catheter into his bladder, and a considerable quantity of water was drawn off. No previous attempt had ever been made to relieve his stricture. The water was very clear, except the last portion, which was turbid.

Jan. 13.<sup>3</sup> Much better. Mr. Cock passed No. 2, and left it in.

14. Kept in the catheter for about twelve hours: has since passed his water in a fair stream: has a good deal of tenderness.

17. Left the hospital: passes his water in a fair stream, and all his symptoms are removed.

#### CASE 11.

##### *Stricture—Bougies used—Relieved.*

WILLIAM HANDY, aged 44: admitted into Philip Ward, on January 19, 1842, under Mr. Cooper: a baker; is healthy, and has drank freely of beer; otherwise of steady habits: married twenty years. At an early age indulged much in sexual intercourse; and had gonorrhœa two or three times before his marriage. States that he has never had any complaint, or urinary obstruction, until about three months ago, when his stream of water began to diminish in size, with intolerance and straining, without any apparent cause. These symptoms increased; and two months ago he consulted a surgeon, who gave him some medicines. At this time he began to have tenderness and swelling in the perinæum. He got worse, until his admission, when there was considerable tumefaction of the perinæum, great tenderness and irritation, and he only passed his water by drops. There was an impervious stricture just anterior to the bulb. He continued to cohabit with his wife till within a fortnight of his admission, without difficulty, obstruction, or pain.

Feb. 12. Bougies have been daily used by the dresser; and he has been taking julep. ammon. c̄ pulv. rhei comp. The perinæal swelling is somewhat reduced; and he passes his water with somewhat less difficulty and irritation. The bougies have been abandoned for the last few days, in consequence of swelling and inflammation of the penis.—He left the hospital the next day.

#### CASE 12.

##### *Stricture—Rigors—Symptoms, &c. relieved.*

WILLIAM MARINER, aged 67: admitted into Lazarus Ward, on Jan. 19, 1842, under Dr. Babington, for ague: a healthy, strong, but somewhat weather-beaten sailor: unmarried: has been tolerably sober and steady. Has not had gonorrhœa for forty years. States, that in the year 1827 had a fall and severe injury to his loins, which was followed by difficult micturition, and the usual symptoms of stricture. These increased in severity, with occasional retention, until about eight years ago, when he was placed under Sir R. Dobson's care, and underwent catheterism, and wore a catheter for nine weeks. Since this he has been able to empty his bladder tolerably well, without suffering much inconvenience or requiring any assistance, until

about three months back, when his difficulties of micturition again increased, accompanied with rigors or ague-fits. He has now intolerance, incontinence, with the stream of water very small, much straining, and considerable pain just above the pubea. Mr. Cock with some difficulty passed No. 3 catheter through an excessively tender stricture at the membranous portion of the urethra: the whole canal was very tender, and there was considerable spasm. A moderate quantity of clear water was drawn off, and the catheter kept in an hour.

*Jan. 23.* His urinary condition much improved.

24. Mr. Cock passed No. 3 much more easily. Had a rigor this morning, the first he has had for three days: urine thick and acid.—Ordered,

Dec. Cinch.  $\bar{c}$ . Sod. et Tinct. Cinch. ter die.

25. No. 5 passed without difficulty: there seems to be a considerable elongation of the prostate, increasing the length of the urethra.

28. No. 7 passes readily; but he seems incapable of emptying his bladder, as Mr. Cock has daily drawn off a small potfull of urine.

29. His bladder contained but little water: had a rigor this morning: he seems to have ague, as the rigors are periodical or nearly so.

31. A large quantity of urine drawn off; from the presence of which he, however, did not seem to be suffering, or indeed conscious of, as he had not had any desire to pass water for six hours.

*Feb. 4.* Left the hospital; his urinary symptoms altogether relieved, as his bladder is emptied by his own efforts, and his urethra tolerably free.

#### CASE 13.

##### *Injury to Urethra—Abscess—Stricture—Cured.*

JOSEPH MUNRO, aged 30: admitted into Philip Ward, on January 26, 1842, under Mr. Key, with symptoms of difficult micturition and deep-seated pain in the perinæum, following a blow on the perinæum which he received about a fortnight previously by falling astride a beam. There were evident symptoms of deep-seated perinæal abscess, but nothing could be detected or felt. Leeches, &c. were applied. The attempt to pass a catheter gave great pain; and as he could get rid of his water, it was not persisted in. About five weeks after his admission a small abscess opened spontaneously in the perinæum, near the anus, by which he was relieved. A decided stricture was found to exist in the membranous portion, which yielded to gradual and judicious catheterism.

*March 26.* A sinus still exists in the perinæum, running backwards about three inches, which is to be injected with zinc lotion.

Voids his water easily, and a moderate-sized catheter passes without difficulty.

*April 8.* His stricture is quite cured. Still injects the sinus, which is healing.

Left the hospital about the end of April, with the sinus nearly healed.

#### CASE 14.

##### *Stricture—Retention—Relieved.*

JAMES WILKINS, aged 56: admitted to Philip Ward, on January 29, 1842, under Mr. Key: a coal-porter, and hard drinker: married at 20: his wife been dead three years. Never had gonorrhœa. Seems to have passed his water in an indifferent stream for the last twenty years. About sixteen years ago he was admitted into the hospital for retention, and remained in eight weeks. Since that time has not had any instrument passed, although he has frequently experienced more or less difficulty, and sometimes temporary obstruction. For the last two years has been getting worse, passing his water in a dribbling feeble stream, with intolerance and frequent temporary retention. His bladder does not seem capable of much distention. He was suffering much pain and irritation at the time of his admission, and could only void his urine by drops. He was put into a warm-bath, and purged with castor-oil. In a short time his bladder was relieved sufficiently to give him ease. Ordered,

Castor-oil every day.—Tinct. Ferri Sesquichloridi 3fs. bis die.

*Jan. 31.* No distention or uneasiness: symptoms all abated: he passes his water in a small stream, but larger than has been the case for the last year or two.—Pergat.

*Feb. 3.* The dresser this morning introduced a small catheter without much difficulty.

7. Getting better: a larger catheter will now pass.

12. The catheterism appears to have brought on inflammation of the urethra, prostate, and bladder, from which he is now suffering.

13. Had retention this morning, and required the use of the catheter.

*March 15.* His canal is a good deal irritated by the injudicious use of the catheter. He, however, gets rid of his water tolerably well, and a small catheter was passed the other day.

30. No. 6 was introduced yesterday, but he still passes his water in a small unsatisfactory stream.

*April 4.* Stream getting smaller: the catheter could not be passed. Ordered,

Leeches; Warm-bath; Calomel and Opium.

*April 8.* All his symptoms of urinary irritation subsided; but he still passes water in a small stream.

14. Mr. Key passed a small catheter into his bladder.

15. No improvement in his micturition.

Left the hospital soon afterwards, still passing his water with difficulty.

#### CASE 15.

##### *Stricture—Retention—Previous Injury—Relieved.*

MICHAEL MURRAY, aged 42: admitted into Cornelius Ward, on Jan. 30, 1842, under Mr. Key: has been married, but his wife has been dead eleven years: a labourer; works in the Docks, and is exposed to damp and wet: drank hard. Has had gonorrhœa several times; the last time was three years ago. For some years appears to have passed water in a diminished stream, with more or less temporary obstruction, but has never required medical assistance.

The day before his admission he fell astride a piece of wood and bruised the perinæum: he passed some blood from the urethra, and afterwards found he could void his water in drops only. He continued in great pain, gradually suffering more and more from retention, until his admission on the evening of the next day. There was no great distention of the bladder, but tenderness of the perinæum, and much distress. The dresser could not pass a catheter. The patient was put into a warm-bath, and ordered *calom. gr. iij. opii. gr. ij. statim.*: to have smaller doses of calomel and opium during the night: leeches to the perinæum. He relieved himself by passing some water while in the bath.

*Jan. 31.* Has been in the bath again, and well purged with salts and senna: more leeches were applied to the perinæum: been able to empty his bladder; and is quite easy.

*Feb. 1.* A small catheter was passed into his bladder this morning, but there was no accumulation: is easy, and can evacuate his bladder by a small stream.

2. The dresser attempted to pass a catheter, but without success: this produced entire retention, with a considerable accumulation in the bladder, and great distress, which Mr. Cock relieved by passing No. 1 catheter after much difficulty. This he retained for some time; and on its withdrawal voided his water in a good stream. He was ordered a full dose of calomel and opium, and a warm-bath.

3. Mr. Cock passed No. 1 catheter, and drew off a considerable quantity of water. The strictured portion of the canal seems moveable; and when the catheter is inserted, it seems capable of moving backwards and forwards, being carried, as it were, by the point of the instrument.

*Feb.* 4. Seems to empty his bladder tolerably well. The dresser failed in introducing a catheter this morning.

7. Mr. Cock passed No. 1 catheter. He is now able to empty his bladder, and is free from pain and irritation.

8. The smallest-sized elastic catheter was introduced, and left in.

9. A larger catheter passed, and fixed in.

11. Mr. Cock passed No 3, and afterwards an elastic catheter of nearly the same size.

18. A slightly-larger catheter was introduced yesterday, and he now passes his water by the side of it.

21. The catheter was removed yesterday, as he was suffering from vesical irritation. To-day passes his water freely, and in a fair stream.

28. He has again worn a middling-sized catheter for a few days: he passes his water in a good stream without any difficulty.

Left the hospital on the following day.

The following report has been extracted from Mr. Cock's private Note-book:—

*March* 13. Has had no difficulty in micturition since he left the hospital, but the stream is smaller. Introduced No 3, and then a larger elastic catheter.

27. Much better: introduced No. 3, and subsequently a larger elastic catheter.

*April* 24. Came with his bladder greatly distended, having passed very little water, with great difficulty, for the last two days: passed an elastic catheter without much difficulty, and drew off nearly two quarts.

*May* 15. Has had no difficulty since, but the canal seems again contracting: passed a catheter after some difficulty. The next morning he came with his bladder much distended, having been unable to pass any water since the previous day. I passed a catheter without the slightest difficulty.

29. Has had no difficulty: passed a catheter easily.

*June* 26. Passed a moderate-sized catheter.

*July* 31. Ditto.

*Aug.* 14. Ditto. Has had some urinary difficulty.

*Sept.* 11. Ditto.

*Oct.* 10. Passed a small catheter.

*April* 2, 1843. Passed No. 5, and afterwards No. 7. The difficulty consists in a slight irregularity of the canal.

30. Passed an elastic catheter without difficulty.

## CASE 16.

*Stricture, with Fistulous Opening—Symptoms relieved.*

WILLIAM EVANS, aged 21½ years: admitted into Stephen Ward, on Feb. 9, 1842, under Mr. Cooper: a delicate, strumous lad; by trade a watchmaker: contracted gonorrhœa two years and a half ago, which lasted about six weeks. About six weeks afterwards, a small swelling appeared in the perinæum, which gave little pain or inconvenience for about six months, when it burst, and allowed some urine to ooze through the opening during micturition. It subsequently became rather larger, but never allowed more than a small portion of urine to escape. Caustic was applied for a short time, without any result. Nothing else was done; and he continued to pass some water through the opening, until his admission, when a small catheter was with difficulty introduced into his bladder. He then wore an elastic catheter for a few days; and in three weeks after his admission the fistulous opening had entirely closed.

*March 16.* Nothing has been done for a fortnight; and he now again passes his water with some pain and difficulty, the stream becoming smaller. It appears that the last time an instrument was passed he suffered some pain, and had temporary retention afterwards. Mr. Cock, after great difficulty, succeeded in introducing No. 1 catheter: the canal was a good deal thickened and irregular.

17. Mr. Cock passed No. 3, and left it in for a short time.

18. An elastic catheter was passed.

20. The catheter had come out: Mr. Cock passed it again without any difficulty.

24. The canal admits No. 5 catheter without difficulty.

Left the hospital on April 13, his symptoms all relieved.

## CASE 17.

*Stricture—Greatly relieved.*

WILLIAM FISHER, aged 26: admitted into Philip Ward on Feb. 9, 1842: farmer's labourer; healthy. Five years ago had gonorrhœa, and has never since been free from a gleet discharge: has had no sexual intercourse for the last seven or eight months.

Has had stricture, which has been getting gradually worse for four years, during which time he has suffered from the usual symptoms, aggravated by catheterism and by attempts to introduce instruments into his bladder: his canal seems to have been much misused. At the time of his admission he could only void his water in a small stream, and had great intolerance, pain, straining, &c. A catheter was passed with some difficulty; but his canal continued in an unsatisfactory, tender, irritable state, until the beginning of March, when



an elastic catheter was passed by Mr. Cock, which he kept in for some days with benefit.

*March 10.* Mr. Cock passed a good-sized elastic catheter, and left it in.

12. Catheter appeared to have become stopped up, and he removed it. Mr. Cock passed it again with some difficulty.

13. He had again withdrawn the catheter; as he said he could not pass his water through it, and had suffered a good deal of pain.

14. Mr. Cock re-introduced the elastic catheter, and left it in.

19. The elastic catheter has again been introduced twice, and left in some hours each time. He now passes his water in a much better stream: has pain in the loins.—C. C. lumbis.

23. Better, but has loss of appetite, and is cachectic.—Ordered,

Decoct. Pareir. Acid. Nit. Muriat. m v. Tinct. Cinch. ʒi. ter die.

*April 8.* Health greatly improved: passes his water without any difficulty.

Left the hospital on April 12.

#### CASE 18.

##### *Stricture—Symptoms relieved.*

W. BRAYBROOKE, aged 32: admitted into Luke Ward, on March 2, 1842, under Mr. Cooper: a sailor; is unmarried; has led a debauched life, and abandoned himself to unlimited sexual intercourse and intemperance. Has had gonorrhœa several times: the last remained two years, during which time he was leading a most irregular life, and was alternately better and worse. During this time he was severely salivated, and afterwards took sarsaparilla. The gleet has now ceased for two years, from which time his symptoms of stricture commenced. Had temporary retention sixteen months ago, and again about seven months back: has frequently had retention since; but no attempts have been made to pass an instrument, until about seven weeks ago, when it was attempted at Liverpool. His stream is very small, his urine often voided by drops: he has intolerance, straining, spasm, pain in the loins, &c.: he suffers occasionally from an injury which he received in his back seven years ago. It appears that for the last five months he has been temperate and continent.

*March 3.* Mr. Callaway introduced a catheter; but the day after the parts were so tender, that leeches were ordered to the perinæum.

7. No instrument has been passed since: is much improved in every respect: passes his water in a tolerable stream.

11. All his symptoms relieved: passes his water in a better stream than he has done for the last two years. The stream, however, is

still very small, and the passage will now not admit of any instrument being passed, the attempt giving great pain.

*March 17.* Mr. Cock ordered him leeches and warm-bath.

Mist. Mucil. Liq. Potass. Tinct. Hyosc. ter die.

23. An instrument cannot be passed, although his urine is voided without pain or difficulty.

25. Left the hospital.

CASE 19.

*Stricture—Symptoms relieved.*

DAVID BAYLEY, aged 34: admitted into Naaman Ward, on March 2, 1842, under Mr. Cooper: a servant: was married between fifteen and sixteen years of age, but for the last ten years has separated from his wife: is steady, and temperate in habits. Had gonorrhœa fifteen years ago; but was quite free from any urinary complaint until six years back, when he had difficult micturition, which ended in retention, and was relieved by warm-bath, &c. Since then he has always passed his water in a small stream, with pain and difficulty; and has had frequent attacks of temporary retention. His canal appears to have suffered much from ineffectual attempts to introduce instruments. Has a good deal of pain in the loins. The day after his admission Mr. Callaway introduced a catheter, and again on March 6th. He suffered much pain and irritation afterwards, with fever, and pain in the perinæum, &c.—Leeches, fomentations, and warm-bath ordered.

*March 13.* No further attempt has been made, and he is somewhat improved, but the canal and its neighbourhood are still very tender.—More leeches ordered, and warm-bath.

19. Mr. Cock passed No. 1. catheter with some difficulty. The urethra is irregular.

23. Mr. Cock passed No. 2. catheter.

24. Better. No. 2. was passed as far as the prostate, and left in, as there is great difficulty in getting past the neck of the bladder.

25. Canal still very tender and painful. From the little good which the introduction of the catheter has ever afforded since he has been in the hospital, it was recommended that nothing should be done at present.

*April 7.* He has been daily improving by being left alone, and passes his water in a better stream than he has done for a long time.

Left the hospital at the end of April.

CASE 20.

*Stricture—Retention—Relieved.*

WILLIAM PADWICK, aged 38: admitted into Stephen Ward, on March 9, 1842, under Mr. Key: a smith; drinks very hard; has been a

widower two years. Had gonorrhœa ten years ago. Is not aware of having had any urinary symptoms until about fifteen months back, when, after drinking, he had retention, and did not pass any water for two days. No instrument was passed; and he was relieved by fomentations and medicines. Since that time his water has always passed in an irregular, uncertain stream, with frequent attacks of temporary retention. About a year ago a catheter was passed for the first time; and since that, up to the period of his admission, he has been repeatedly catheterized, with great apparent detriment to his canal. His retention, which at the time of admission was chiefly spasmodic, was relieved by leeches warm-bath, &c.; and there was but little difficulty in passing a catheter afterwards.

*March 25.* He has been suffering from a severe attack of fever for the last week, which came on after No. 7. catheter had been passed with much pain and difficulty. Is now getting better, and passes his water tolerably well.

*April 9.* Passes his water in a good stream: has no urinary symptoms.

*May 1.* His urinary difficulties have varied. Micturates fairly. No. 5. catheter passes without difficulty.

Left the hospital on May 4.

#### CASE 21.

##### *Stricture—Retention—Relieved.*

J. WATSON, aged 26: admitted into Cornelius Ward on March 24, 1842: married three years; of irregular habits; drinks very hard; is a labourer. Two years ago contracted a gonorrhœa, which lasted nine months. He had no previous urinary derangement; but for the last year has passed his water with more or less difficulty. Has had no advice. The day before his admission, after drinking very hard, he had retention, which continued all night. On admission, there was considerable distention of the bladder, and all the usual symptoms of retention. Ordered, warm-bath; calom. gr. iij. opii gr. ij. statim. Soon afterwards No. 6. catheter was passed with little difficulty, by which he seemed completely relieved.

*March 26.* Left the hospital, passing his water with perfect ease, and in a better stream than he has done for many months. The retention appeared to depend on spasm, brought on by drink.

#### CASE 22.

##### *Retention of Urine—Cured.*

WILLIAM ELLIS, aged 30: admitted into Philip Ward, on March 31, 1842, under Mr. Key: a bricklayer; is steady and temperate. Had

gonorrhœa a year ago, and again seven months back. He got well in a few weeks, and did not use any injections. The entrance to his urethra is naturally contracted; but he never experienced the slightest difficulty in micturition till March 27, when, in the morning, he made water in a somewhat smaller stream: in the evening, without any assignable cause, he had almost total retention, and could only void his urine in a few drops. On the next day, March 28, his water was drawn off by a catheter, which was repeated on the 29th and the 30th. He came into the hospital on the 31st, with retention; and after being in the warm-bath, the dresser passed a catheter. He has since been able to pass his water with tolerable ease.

*April 5.* Mr. Cock examined him, and found a stricture at the membranous portion, with a false passage leading behind the prostate. There was no difficulty in introducing a moderate-sized elastic catheter, which was left in.

7. The catheter was removed.

8. Passes his water freely, and has no symptoms of difficult micturition whatever.

Left the hospital April 13, quite well.

#### CASE 23.

##### *Impenetrable Stricture—Fistulous Opening—Overcome after much difficulty—Cured.*

ABRAHAM STEEL, aged 46: admitted into Philip Ward, on April 6, 1842, under Mr. Morgan: a gardener; steady, and of temperate habits; been married twenty-eight years. About twenty-four years ago had gonorrhœa. Was never aware of any urinary derangement until about eighteen years ago; when he suddenly had retention, without any apparent cause, but was relieved by fomentations, &c. From this time he dates the presence of a stricture, accompanied with difficult micturition, varying in degree at different times, and frequent attacks of temporary retention. Has been several times under the treatment of catheterism, &c. A catheter has not been passed for the last three years; and during that period he has voided his water with increasing difficulty, diminished stream, straining, &c.: had intolerance, and a mucous deposit in his urine. For several years coïtus has been painful, and unaccompanied by emission. Last summer a small and rather a chronic abscess appears to have formed behind the scrotum, which, in course of time, formed a fistulous opening just above the scrotum, through which he has passed a portion of his water for the last four months. There is now considerable induration and thickening about and above the bulb, and an impenetrable stricture at that part.

*April 15.* Bougies and catheters have been passed daily, but the stricture has not been penetrated.

19. Had retention yesterday evening: owing, probably, to the irritation produced by the catheter. Was relieved by opium, leeches, and bath.

*May 7.* Considerable improvement in his micturition, owing to the stricture being penetrated to some depth by a sound.

26. He is much in the same state: the use of the caustic bougie commenced to-day, and was continued for six or seven days without any benefit.

*June 22.* Mr. Morgan succeeded in passing a catheter to some distance in the stricture.

*July 14.* The fistulous opening appears to be closed, and he passes his water in a better stream than he did; but the use of instruments has been suspended, as he has been suffering from piles. A sound was to-day passed considerably further on.

*Sept. 7.* No further progress has been made: the caustic bougie is now again employed.

*Nov. 12.* The caustic has been continued, with occasional introduction of an instrument; and his stream of water has been continually improving. Yesterday a small catheter was passed into the bladder.

26. Mr. Cock introduced a moderate-sized elastic catheter without much difficulty, which he wore for two days with great benefit. The fistulous opening appears to be quite closed.

Left the hospital on December 12.

The subsequent particulars of the case have been added by Mr. Cock.

*Jan. 21, 1843.* Has passed his water tolerably well, and has little intolerance; but there is still considerable induration about the bulb, and the track of the original fistulous opening still exists, hard and distinct: a few drops of water often escape, and he feels sometimes considerable pain at the part after micturition. Passed No. 4 and a small elastic catheter without difficulty.

*April 23.* Mr. Cock visited him: he was suffering from retention. No. 3 was passed, and a large quantity of dark turbid urine was drawn off.

Admitted into Barnabas Ward, under Mr. Cock, on April 29, 1843.

*May 1.* Introduced, and left in, an elastic catheter. He has little power of expelling his urine, and retains it, without much difficulty, for twenty-four hours. The same treatment was repeated a few times; and at the end of the month he was perfectly well, Nos. 5 and 6 passing easily.

*July 15.* Passes his water perfectly well, and has not the slightest urinary symptoms or difficulty whatever. The fistulous opening in the perinæum is now closed; and its situation is marked by a small indurated button of skin, like a pea; from which the indurated remains of the fistulous passage may be traced downwards towards the membranous portion of the urethra. He left the hospital soon afterwards, quite well.

## CASE 24.

*Retention of Urine—Cured.*

EDWARD POPE, aged 40: admitted into Accident Ward, on April 7, 1842, under Mr. Morgan. A sailor; is unmarried, and temperate. Has had gonorrhœa several times; the last time being between two and three years ago, which was followed by a diminished stream, gradually getting worse ever since. Returned from sea four weeks ago with dysentery, which was checked about a week back; since which his urinary difficulties have increased, with straining and intolerance, until total retention occurred on the morning of his admission. He was put in the warm-bath, and had opii gr. iij. with calomel; soon after which Mr. Callaway passed a catheter without much difficulty.

*April 8.* Could pass no water by natural efforts. The dresser passed a catheter.

12. To-day he was, for the first time, able to void a few drops of urine.

*May 4.* Is now able to pass his water without the catheter.

20. Passes his water in a good stream. He subsequently had an apoplectic attack, but got well; and left the hospital about the beginning of June.

## CASE 25.

*Impervious Stricture—Caustic Bougie ineffectual—Penetration of Stricture—Relieved.*

JOHN CONCANNON, aged 26: admitted into Stephen Ward, on April 13, 1842, under Mr. Cooper. A labourer on the Great Western railroad. Seems to have led a dissipated, intemperate life; addicted to liquor and women. Has had gonorrhœa several times; the first time being between ten and eleven years ago, for which he took medicine and used injections for a long time, and ever since has experienced more or less difficulty in passing his water. Eight years back he had retention, which was relieved by the catheter; but he has had it many times since. About two years ago he was in the Charing-Cross Hospital, with abscess in the perinæum. The abscess and urethra appear to have been laid open together, by which his urgent symptoms were relieved: the wound closed in ten days; and

when he left, No. 6 catheter could pass, and he could micturate freely. He remained well for some short time, when the urethra gradually contracted again; and for more than a year he has only passed his water by drops: he has intolerance, much straining, and pains in the loins: urine often turbid. For a long time, coïtus has been painful, and unaccompanied by emission. The stricture is at the membranous portion, and is impervious. Ordered,

Warm-bath.—Caustic bougie.

Calomel gr. iſs. Opii gr. ſs. o. n.

*May 3.* The caustic has produced much additional irritation and pain to his former symptoms, and there is perinæal tenderness. Ordered,

Warm-bath.—Twenty leeches to the perinæum.

Julep. Pot. Citrat. et Spir. Æth. Nit. ter die.

Pil. Ant. Op. Fort. c̄ Cal. o. n.

*June 2.* The caustic has been irregularly used; and has been generally followed by an aggravation of all his symptoms. No real progress has been made with the stricture.

29. Within the last few days Mr. Cock has attempted to introduce a small sound, but without making any impression; the parts about the stricture being apparently more indurated and impermeable than at the time of his admission. To-day he is suffering from renewed pain and irritation, and every indication of matter forming deep in the perinæum.

*July 6.* Considerable hardness in the perinæum, or rather behind the scrotum. Mr. Cooper made an incision, and evacuated some matter: some of his water came through the opening.

22. Much relieved. During the last week Mr. Cock made some progress with a conical sound, but without any marked benefit in micturition. He is now again suffering from some irritation and induration about the bulb: this almost entirely subsided in the course of the following week, under rest and fomentations.

*Aug. 27.* Attempts to pass a small elastic catheter brought on fresh irritation and swelling; which has been again removed by repeated application of leeches; and there now only remains the induration and thickening about the canal itself, just anterior to the bulb. Is now using

Ext. Bellad. ʒi. Ung. Pot. Iodid. et Ung. Hyd. Nit. āā ʒiij.

*Sept. 27.* Much in the same state. The ointment appears to have affected his mouth. Some water escapes by the perinæum. Mr. Cock introduced a conical sound into his bladder, and afterwards an elastic catheter, which was fixed in. On the 30th it was exchanged for one of a larger size.

*Oct. 2.* Catheter removed, as it was producing severe symptoms of vesical and prostatic irritation. Ordered, leeches to be applied.

6. He was completely relieved by the leeches; and in two days time had lost all pain and irritation, passing his water in an improved stream.

19. Has been suffering from irritation, produced by the forcible introduction of a full-sized instrument about a week ago, and also from internal piles, both of which are now abated. Mr. Cock introduced a No. 5 elastic catheter, and left it in. It produced so much irritation the next day, that it was removed.

*Oct. 29.* Three days ago Mr. Cock re-introduced the elastic catheter; which has been worn ever since, without the slightest inconvenience. The fistulous opening seems closed, and the induration is almost gone.

*Nov. 3.* The catheter was removed three days ago; and to-day again introduced.

25. Has retained a good-sized catheter in his bladder for the last three days. Since its removal, he passes his water in a free stream. Has some pain in the perinæum during micturition: a little pus escapes from the opening, but no urine. Derives benefit from the use of soap-and-opium suppositories, but his bladder is still irritable.

*Dec. 10.* Left the hospital. Voids his urine in a good stream, and the catheter passes without much difficulty.

*Dec. 28.* He attended as an out-patient, under Mr. Cock, who gives the following report:—

Since his return to fatigue and exposure on the railroad he has become the subject of considerable intolerance, with very acid urine, loaded with mucus. Passes his water with pain, and in a small stream. Introduced a conical sound and a small elastic catheter with ease.

*Jan. 23.* No alleviation of his intolerance: his urine is loaded with mucus and shreds of lymph, and is acid. Passed No. 5 catheter, with some difficulty at the prostate. Has take nliq. potass. and mucilage; and now ordered diosma and mucilage; suppositories. Some fluid extract of opium was injected into the urethra.

*March 10.* The opium injection was effective in preventing the irritation for some days; but the medicine appeared to have given little relief. His irritability of the prostate is now as bad as ever; and his bladder will not hold above two ounces of water. Finds great relief from the suppositories. No. 5 elastic catheter was passed with some difficulty.—To continue the suppositories, and to inject the lotio opii, if possible.

The continuation of this treatment eventually afforded him permanent relief.



## CASE 26.

*Stricture—Relieved.*

GEORGE BORWELL, aged 33: admitted into Stephen Ward, on May 11, 1842, under Mr. Key: painter; is steady and temperate; been married eight years. Had gonorrhœa when he was 16, but not since. When about 18 or 19 years of age he injured the perinæum by a fall across a cart-wheel. Has suffered from urinary difficulty for the last eight years, and has had temporary retention several times. Was in Guy's Hospital two years ago for the same complaint. On admission, he passed his water with much difficulty, in a very fine stream. Has had the warm-bath regularly, and gradual catheterism has been used.

June 10. The canal now admits a tolerable-sized catheter, and he passes his water freely.

Left the hospital on June 18.

## CASE 27.

*Stricture—Retention—Relieved.*

JOHN TINDLEY, aged 42: admitted into Philip Ward, under Mr. Morgan, on May 21, 1842: a shoemaker; unmarried; steady and temperate. Seven years ago had gonorrhœa for three months, but used no injections. His urethra appears to have been slowly contracting ever since, with gradual diminution of stream. Four years ago, after drinking some beer, he had retention for several hours, but was relieved without the catheter: since then he has had temporary retention several times. Was relieved by the catheter a year ago, and once since. The day previous to his admission he had been drinking some beer, and afterwards took gin to relieve the retention caused by the beer. He has passed no water for several hours, and was in great pain. Mr. Callaway introduced a catheter, and drew off his water.

May 24. Has been wearing a silver catheter, No. 4, since the 22d. Is suffering much pain from it.

25. Catheter removed: he passes his water in a tolerable stream, but with considerable scalding. Takes mist. mucil., liq. pot., et hyosc.

June 7. Passes his water without difficulty or pain.

Left the hospital on June 14.

## CASE 28.

*Stricture—Cured.*

JOHN CLOVES, aged 37: admitted into Stephen Ward, on June 1, 1842, under Mr. Key: a waterman; is strong, healthy, and steady; has been accustomed to drink pretty freely. Was married before he was 18, and has had a second wife seven years. Had gonorrhœa sixteen years ago. Five years back received a blow on the testis, which was followed by inflammation and swelling; and about four years

ago first experienced difficulty in micturition, and diminished stream, which symptoms have gradually increased. For the last two years the stream has been exceedingly fine, and he passes his water with much straining: has no intolerance: his water is generally turbid on cooling. Has taken a good deal of medicine within the last two or three years, but no mechanical means have been had recourse to.

June 3. Passes his water more freely, in consequence of having remained quiet for the last few days. Ordered,

Hydrarg.  $\bar{c}$  Cret.—Hyoscyamus and James's Powder, gr. iij. every night.—Warm-bath.

10. A small catheter was introduced on the 6th, and an elastic catheter yesterday, which he now wears.

16. The catheter came out on the 12th; after which he passed his water at first in a full stream; but it has been daily declining, and now is as small as when he was first admitted. There has been some discharge of bloody pus at the urethra, and a good deal of febrile excitement.—Diaphoretics, &c.; and suspend use of catheter.

22. He now passes his water in a fair stream, no instrument having been passed for a week.

July 1. His canal now admits No. 6, without much difficulty. Left the hospital, quite well, on July 3.

9. Mr. Cock saw him: he was passing his water in a full stream, and was quite well.

#### CASE 29.

##### *Injury to the Perinæum and Urethra—Retention—Cured.*

THOMAS ROWE, aged 54: admitted into Cornelius, on June 3, 1842, under Mr. Key: a carpenter by trade. Had fallen astride across a joint, and injured the perinæum and urethra. Soon after the accident he passed blood by the urethra, but could not micturate. On admission, an elastic catheter was introduced, and left in the bladder.

June 5. The catheter came out in the night; and he has since passed his water with some smarting, but without any apparent tendency to extravasation.

8. The catheter has again been introduced, in consequence of the great pain he suffered during micturition.

18. Has ceased to wear the catheter for the last week, although it has been once or twice introduced. Is nearly well.

20. Left the hospital quite well.

#### CASE 30.

##### *Stricture—Relieved.*

JOHN DELANEY, aged 48: admitted into Philip Ward, on June 15, 1842, under Mr. Cooper: a married man, by occupation a shoemaker;

of light aspect, pallid and anxious countenance, and indifferent health: has lived low, and drank freely. He states, that about fourteen years ago he had gonorrhœa, which was followed by stricture; and has ever since experienced, more or less, urinary difficulty. Instruments have occasionally been passed; but for the last few years he has had no surgical assistance. Latterly, the size of the stream has diminished, and the difficulty of micturition has increased, more especially after eating any thing salt, or drinking any more than his usual quantity. He is now highly nervous and weak, and complains of pain and weakness about the loins.

On examining the urethra, a firm stricture was found at the termination of the membranous portion of the urethra, resisting the introduction of the instrument. Mr. Cooper ordered,

Pil. Col.  $\bar{c}$  Cal. gr. xv. statim.

M. M.  $\bar{c}$  M. S. postea.

Warm-baths twice a-week.

Calom. gr. iſs. Opii gr. ſs. o. n.

*June 28.* Mouth affected: omits the pill. Passes his water much more freely, and has nearly lost all his symptoms.

*July 5.* Gradual dilatation of the stricture, by means of the catheter, has been had recourse to; and No. 4. is now easily introduced. He passes his water very well.

Left the hospital soon afterwards.

#### CASE 31.

##### *Stricture, result of Contraction of Urethra from Chancre—Relieved.*

GEORGE COUCHMAN, aged 22: admitted into Luke Ward on June 22, 1842: a hatter: has led an extremely dissipated and debauched life. About two years ago he acquired a chancre at the under part of the root of the glans, which appears to have destroyed a considerable portion of it, to have laid open the urethra, and extended the destruction some way down into the canal. He was four months in ——— Hospital, and was severely salivated. When he left, he had some difficulty in micturition, which has continued to increase. He was admitted into Guy's Hospital, under Dr. Bright, for general mercurial cachexia, ulcerated sore-throat, &c. &c.; from which he was recovering on July 12, when Mr. Cock saw him. The under part of the glans, and corresponding portion of the urethra, is destroyed, leaving a very small opening beyond the corona glandis, concealed in the folds of skin. The urethra is greatly contracted as far as the membranous portion, beyond which it appears to be free and open: the spongy body is perfectly hard and unyielding, producing a strong curve in the penis under erection. He passes his water in a mere dribble, and with

great pain and straining. With some difficulty, and great pain to him, Mr. Cock first introduced a probe; and then a small bougie, which was left in. In the afternoon of the same day, Mr. Cock passed a larger bougie.

July 13. An elastic catheter was now introduced; which was succeeded on the following day by a larger one.

16. The catheter was removed, and he was able to pass his water in a very fair stream.

He left the hospital on July 18.

#### CASE 32.

##### *Stricture—Perinæal Abscess—Cured.*

JAMES TITMAS, aged 41: admitted into Stephen Ward, on July 13, 1842, under Mr. Key: a labourer, probably of intemperate habits; unmarried. Had gonorrhœa about fifteen years ago. About twelve years back he had retention, and, from his own account, had a large accumulation of blood in his bladder, which was with difficulty got rid of. For the last three years he appears to have had decided stricture, with a small stream of water, difficult micturition, and intolerance: has had no surgical assistance. Three weeks ago an abscess formed in the perinæum, which was laid open on his admission, and the contents evacuated.

July 20. The abscess healing: passes his water in the same-sized stream, but with more ease. Takes pil. sapon.  $\bar{c}$  opio o. n. No attempt has yet been made to pass an instrument.

Aug. 6. After some difficulty, a small instrument was passed into his bladder.

20. Frequent attempts have been made to pass an instrument, but without success.

30. A good-sized catheter was introduced to-day without difficulty. Left the hospital September 8, well.

#### CASE 33.

##### *Stricture—Retention—Bladder enormously distended—Stone in the Urethra—Operation—Death.*

SAMUEL EAMES, aged 49: admitted into Stephen Ward, on August 3, 1842, under Mr. Key: has been a working jeweller, but for some years a labourer: been married thirty years: his last child is now twenty-three years of age: seems to have lived a very irregular, intemperate life: from an early age been addicted to excessive sexual indulgence. States that he had gonorrhœa fifteen years ago, from which period he dates the commencement of a stricture which has been gradually getting worse: he has never had any advice or assistance whatever. For several years has continued to void his urine by

drops, with almost constant intolerance, and always having a distended bladder, to which he appears to have become accustomed. Between three and four months ago he seems to have had extravasation, and suffered much from pain and a distended scrotum; but this subsided again. On admission, he had passed very little water since the day before: his bladder was enormously distended, reaching beyond the umbilicus, and forming a projecting tumor like a pregnant uterus: it was tense and full; and his pain and distress were little, compared to the size of the bladder. The parts about the bulb were enlarged, indurated, and hard as marble; and not the slightest impression could be made by a small catheter. He was placed in a warm-bath; and then had calom. gr. iv. opii gr. ij. statim. In about an hour afterwards he was easier, but had passed no water: his pulse was full and bounding. He was bled to  $\frac{3}{4}$ xx.; and then Mr. Cock succeeded in just penetrating the stricture with No. 1. catheter; after which he got rid of a few ounces of water, and was much relieved. Ordered, twenty leeches to the perinæum; castor-oil, and house medicine.

*Aug. 4.* Has succeeded in voiding small quantities of urine, especially after his bowels had been acted upon. Expressed himself as being perfectly easy and comfortable; although his bladder is still enormously distended, reaching to the umbilicus, but not so tense and hard as yesterday. Ordered,

Tinct. Ferri Sesquichloridi 3fs. 2dis horis.

His kidneys are probably affected, as he seems to have suffered much from pain in the loins. Yesterday he complained of weight and oppression about the head; which is quite gone to-day, and there is not the slightest cerebral symptom, nor does he complain of any thing. For many years, sexual intercourse has been accomplished with extreme pain, and without emission.

6. The bladder is somewhat less tense, and he gets rid of a certain amount of urine. His water contains a large quantity of thickropy mucus, with, apparently, some pus. No pain or symptoms.—To renew the tinct. ferri sesq., which he has discontinued since yesterday.

8. Bladder considerably reduced, and the water passes much more freely. The swelling about the perinæum is much reduced. On examination, Mr. Cock thought he could detect a calculus; and on introducing a small catheter, he readily passed it through the stricture, when it immediately struck upon a stone impacted directly behind the contracted portion of the canal. From the man's account, it would appear that this had existed for at least a year; at which time it is probable that a small calculus left the bladder, and travelled as

far as the stricture, where it was stopped, and continued to grow by the addition of fresh layers.

*Aug. 9.* Mr. Key cut down on the stone, and removed it. It was of a considerable size, rounded where it occupied the bulbous portion of the urethra, and furnished with an elongated peduncle, which extended into the membranous portion. A small catheter could then be passed without any difficulty. In the evening he had some hæmorrhage, which was stopped by introducing sponge into the wound. His water required to be drawn off. From the time of his admission his breathing had been exceedingly laboured and oppressed, with considerable prostration of power. Both these symptoms increased after the removal of the stone; and in spite of stimuli, he sank, and died on August 12, at 6 o'clock A.M.

SECTIO CADAVERIS.—Lungs completely infiltrated with serous fluid: their anterior margins emphysematous, and overlapping the pericardium. Liver somewhat enlarged and indurated. The bladder contained about half-a-pint of turbid urine: the muscular coat was hypertrophied, displaying numerous bands of thickened fibre: the lining membrane was vascular, and in some parts ecchymosed, but not otherwise altered. The entrance to the urethra was large and patulous, readily admitting the little finger: the prostatic ducts were greatly dilated; and the pelves of the kidneys enormously distended. The left kidney was larger than natural, the infundibula being converted into pouches, surrounded by the secreting portion of the gland. The right kidney smaller than natural; and the dilated infundibula had apparently encroached upon the solid texture of the gland, and absorbed or compressed its substance. Nevertheless, the kidneys had continued to exercise their function, as the quantity of urine secreted was abundant.

#### CASE 34.

##### *Stricture—Retention—Relieved.*

FREDERICK HOBDEN, aged 49: admitted into Philip Ward, on August 3, 1842, under Mr. Key: married twenty-three years: lives freely, as regards drink. Has suffered from urinary difficulty between two and three years, which he dates from the period of receiving a kick in the perinæum, which was painful for a few days, but did not occasion urethral hæmorrhage or any marked symptom. Has passed his water since then in an imperfect stream, and frequently has had more or less retention, sometimes requiring the catheter: this generally occurred after drinking beer. On admission, his bladder was moderately distended: he had passed no water since the morning, and complained of much pain and irritation. Ordered, warm-bath, calomel

and opium; after which Mr. Cock passed No. 3 catheter. He has stricture in the membranous portion, but the retention was spasmodic.

*Aug. 4.* Has since passed his water without much difficulty.

6. Mr. Cock passed No. 5.

He left the hospital on August 9.

14. Mr. Cock introduced an elastic catheter: he passes his water in a good stream.

#### CASE 35.

#### *Stricture—Retention—Extravasation—Extensive Sloughing— Fistulous Opening in the Perinæum—Cured.*

ISAAC RUFF, aged 59: admitted into Philip Ward, on August 24, 1842, under Mr. Key: a carpenter; of spare habits, temperate and steady. Been married twenty-two years; has a family; the youngest child 15 years of age. Has not had gonorrhœa since he was a lad. Appears to have had confirmed stricture for the last six years; during which time he has passed his water in a very small stream, with intolerance and straining. Has frequently suffered very much from the effort to retain his urine while employed on his business. He has never had any advice, and his symptoms have gradually increased. Has continued to indulge in sexual intercourse, although with great pain, and without emission.

On the evening of the 22d, he appears to have laboured under almost total retention; and on the 23d, about 4 o'clock P.M., the urethra seems to have given way, and swelling of the scrotum to have ensued; which rapidly increased, attended with severe pain and prostration, until the time of his admission in the early part of the afternoon of the 24th. At that time the whole of the scrotum was enormously swollen, and the penis in the same condition; both, more especially on the right side, were perfectly black, and the cuticle was entirely abraded. The perinæum was free from effusion, but the swelling and infiltration were rapidly extending over the pubes on to the abdomen. Mr. Cock made a deep incision, through the gangrenous cellular tissue, on both sides of the scrotum, and along the right side of the penis as far as the pubes. In a few minutes, about a pint of foetid ammoniacal urine and fluid had flowed from the incisions, with hardly a tinge of blood. Mr. Cock passed a small catheter, and found an impermeable stricture anterior to the bulb: the urethra appeared to have given way just behind the lower part of the scrotum, and the perinæum was not implicated. He was immediately relieved; and as there was no distention of the bladder, a catheter was not attempted to be introduced, but all the parts were ordered to be fomented, and brandy-and-water to be given him. In the evening he was much better, and quite easy: had passed his water through the wounds and by the penis.—Merely to have support.

*Aug. 25.* Has slept well ; is quite free from pain ; and passes his water more freely by the penis than he had done for a long time previously. The swelling of the scrotum and penis has greatly subsided, as also the tumefaction above the pubes. His strength is completely rallied.—Ordered to continue the support, and moderate stimulus.

27. Going on well : passes his water in a tolerable stream, and takes nourishment. Some indication of an abscess forming above the pubes.

*Sept. 1.* Going on well : the abscess above the pubes was opened, and a great quantity of slough and pus was evacuated. Considerable sloughing, and loss of cellular tissue above the pubes, ensued.

27. Healthy granulations and cicatrization is taking place around the penis and scrotum, where the loss of skin, from sloughing, has been very extensive. It appears that, for nearly two weeks, the water has passed through a new opening in the granulations just below the root of the penis, and has now entirely ceased to pass through the penis itself. With some difficulty, Mr. Cock succeeded in passing a small-sized catheter into the bladder, and retained it there for some time.

28. Mr. Cock introduced an elastic catheter, and fixed it.

*Oct. 6.* Has ceased to wear the catheter for the last two days ; and the water now again finds its way out partly by the false opening. An abscess formed in the perinæum, which Mr. Cock opened. A few days afterwards a larger catheter was passed without any difficulty.

18. Continues to wear the catheter, through which he passes all his water. Cicatrization is going on.

26. The catheter has been removed for the last few days. He passes his water freely through the urethra, while a daily diminishing quantity finds its way through the false scrotal opening. A full-sized elastic catheter was again introduced.

*Nov. 29.* Left the hospital. During the last month the elastic catheter has been occasionally introduced ; and suffered to remain a few days, until urethral and vesical irritation required its removal. The wounds are now all but cicatrized ; and the fistulous opening in the perinæum appears gradually closing.

The subsequent report has been added by Mr. Cock :—

*Dec. 7.* Quite well ; wounds cicatrized ; passes his water in a good stream, with sometimes a slight oozing from the old fistulous opening. Could not pass any instrument, as the contractions and adhesions appear to have altered the direction of the canal.

*Jan. 31, 1843.* Is well and strong ; wounds quite healed ; passes his water in a good stream, with the occasional escape of a drop from the fistulous opening, the situation of which is hardly to be recognised.



## CASE 36.

*Stricture—Extravasation—Extensive Gangrene—Urethra laid open—Recovery.*

WILLIAM SMITH, aged 46 : admitted into Cornelius Ward on Aug. 30, 1842, in the morning. A gun-maker; been married many years; is cachectic, and looks unhealthy. Had gonorrhœa sixteen years ago, and appears to have passed his water in a diminished stream ever since. For the last few years he seems to have laboured under all the difficulties of severe permanent stricture, probably amounting to an almost total obliteration of the greater part of the canal. From his own account, an indurated swelling has existed for several months on the under part of the urethra, about the middle of the penis; and three weeks ago he received a blow on this, which was followed by inflammation and swelling. Within the last few days extravasation appears to have taken place, which has been gradually increasing, and producing gangrene. Has never had any attempts made to relieve the stricture; but within the last week or two has been under the care of a surgeon, and also of a chemist. He has taken a great quantity of medicine, and had poultices applied. On admission, he was exceedingly low and depressed. The penis was enormously swollen from infiltration, erect, and hard; the extravasation appeared to extend throughout the body of the penis, as well as the cellular texture. Nearly the whole of the skin and cellular texture was in a state of gangrene; the corpus spongiosum seemed to be particularly affected by the infiltration; the glans was perfectly hard from excessive distention, and of a purple livid colour. The hardness could be felt and traced downwards through the scrotum, which was a good deal distended and assuming a gangrenous hue, to the perinæum, where the bulb and adjacent parts were greatly swollen and indurated. There was no infiltration into the cellular membrane of the perinæum. From the appearances and history it would appear that the urethra had given way in its spongy portion, probably at the induration before mentioned about the middle or towards the root of the penis; that extravasation had taken place throughout the whole of the spongy body from the glans to the bulb, perhaps extending itself into the cavernous bodies; and that the cellular tissue, first of the penis and then of the scrotum, became similarly affected. He seemed to have passed no water since yesterday. Fomentations applied; brandy; bark and ammonia to be given: no catheter could be passed. Several incisions were made into the cellular membrane of the penis, and the scrotum was also incised: a considerable quantity of fetid ammoniacal urinous fluid escaped. He was somewhat relieved by the discharge of fluid from the cellular membrane; but no relief was

afforded to the induration and distention of the penis itself: on the contrary, it became harder and larger, and the glans was evidently rapidly passing into an entire state of gangrene. The perinæum was also becoming more swollen, both as regarded the cellular texture and the more deeply-seated parts. He had passed no water; and therefore, at 6 o'clock P.M., Mr. Cock cut into the perinæum, and found the whole of the deeply-seated parts anterior to the perinæal fascia as hard as cartilage. As there was no urine in the bladder, which was probably in a state of permanent contraction, there was considerable difficulty in finding the urethra; but Mr. Cock succeeded in opening it, and passing a female catheter into the bladder: an ounce or two of urine was evacuated, and along with it a considerable quantity of pus, as if some abscess had formed about the prostate. The catheter was secured.—Brandy was given him, and the fomentations continued.

*Aug. 31.* Slept tolerably well; is free from pain; passes his water through the catheter; penis diminished in size, and softer; scrotum less tense. The progress of infiltration evidently arrested by the operation.

*Sept. 1.* Extreme depression.—*Adde spir. æth. sulph. c. ad mist.*

3. Has rallied; and the slough, which includes the greater part of the penis, seems beginning to separate.

8. The larger part of the penis has separated without hæmorrhage, leaving a healthy surface.

25. Penis and scrotum healing. Withdrew the female catheter from the perinæum with some difficulty, the end of it having acquired a large deposit of calcareous matter.

*Oct. 3.* Cicatrization is nearly complete over the penis and scrotum. His health is re-established, and he walks about without inconvenience. He passes his water entirely through the artificial opening in the perinæum, with perfect ease; and has entire controul over the functions of the bladder. Of the penis nothing remains but a portion of skin including the entire length of the right side of the organ, with perhaps a portion of the cavernous body of that side. The left cavernous body, the glans, and the entire spongy body, appear to have separated close to the symphysis pubes, and deeply behind the scrotum. Not a vestige of any urethral opening can be seen. Under these circumstances, as his urinary functions are perfectly performed per perinæum, it seemed most judicious to allow the perineal opening to remain, rather than to seek the restoration of the urethra above the scrotum, where the orifice of the canal (being formed by the granulations, which are now filling up the hole left by the separation of the root of the penis) would be liable to continual contraction and permanent inconvenience.

Left the hospital October 7.

Oct. 14. Called on Mr. Cock, to say, that during the last few days the urine had been gradually finding its way through the unhealed opening between the root of the penis and the scrotum; and that he now passed his water in that direction in a considerable stream, while the perineal passage seemed nearly closed. Mr. Cock endeavoured to pass a small bougie from above, but could not succeed in reaching the bladder.

July 18, 1843. Has continued well in health; and has passed his water partly by the artificial opening in the perinæum, and partly through the remains of the natural passage at the root of the penis. Within the last two or three weeks some extravasation appears to have taken place on the right side of the scrotum; which has ended in an abscess, and the formation of a temporary fistulous opening communicating with the urethra. With this exception, the parts about the urethra appear healthy and sound.

#### CASE 37.

##### *Stricture—Retention—Stone in Urethra—Operation—Cerebral Symptoms—Death.*

JAMES FLONG, aged 36: a stick-dresser, admitted into Stephen Ward on September 4th, 1842, under Mr. Morgan, in a complete state of collapse, and suffering from retention of urine. The following history was obtained:—Had led a very intemperate dissipated life, and never been free from a gleet. Been married six years. For the last two years has had great and increasing difficulty in micturition; and for the last year has suffered great pain in the loins, accompanied with violent straining in passing his water. About four months ago, all his urinary symptoms have become aggravated; and he took medicine, which produced temporary retention: since then he has only passed his water by drops. For the last two weeks he has passed several small fragments of calculi. His virile powers appear to have been very inefficient; and for the last year he has been almost incapable of sexual intercourse. Had been confined to his bed for two days previous to his admission.

He was now extremely low, with very feeble pulse and cold extremities: his bladder was moderately distended; the penis somewhat swollen; and the surface of the glans had been gangrenous for the last twenty-four hours. There was no swelling about the bulb or perinæum, and no extravasation. He had a paraphymosis, which Mr. Cock divided. On attempting to pass a catheter, Mr. Cock found the first few inches of the canal so narrow as only to admit a No. 1 catheter; with which he discovered a small calculus, apparently partly impacted, as the instrument passed readily beyond it, and with some difficulty was carried into the bladder. A small quantity of blood and urine

flowed, when the catheter became obstructed, and no more could be drawn off. As it was impossible to extract the stone with forceps, on account of the narrowness of the canal; and as the retention, which was by no means severe, seemed the result more of inanition than obstruction; and as his collapse rendered him unfit to undergo an operation for removing the stone; Mr. Cock ordered him *julep. ammon. c̄ vin. opii m viij. 3tis horis*, brandy, and warm-bath: after which, he relieved himself by passing a considerable quantity of water, and partially rallied, sufficiently so to answer one or two questions.

*Sept. 5.* There was no decided amendment in his condition: accumulation had again taken place in the bladder, and he had passed very little water since the day before: he was incoherent in his answers, and in a state bordering on low delirium, apparently in the last stage of long-continued disease, and not ascribable to the mere presence of a calculus in the urethra. Mr. Morgan cut into the urethra, just behind the scrotum, on a grooved sound; but he was not able to reach the stone, which was situated considerably anterior to the incision: he then passed a female catheter into the bladder, and drew off a considerable quantity of dark, unhealthy urine. The catheter was left in, and brandy given him. He never rallied, and died on *Sept. 7*, at 1 o'clock P.M.

**SECTIO CADAVERIS**, September 8th. The abdominal viscera presented no particular alteration: the liver presented the usual state of granular degeneration resulting from intemperance, and had contracted old adhesions to the parietes. The kidneys presented some slight granular degeneration. The bladder contained a small quantity of turbid dirty fluid, and was marked by some ecchymosed spots. The urethra had been much lacerated at the opening in the perinæum: it contained a small calculus about the size of a pea, opposite the scrotum, which appeared to have formed one of several pieces. Brain slightly congested; and the arachnoid cavity contained a considerable quantity of serum.

#### CASE 38.

##### *Stricture—Retention—Relieved—Sudden Bronchitis—Death.*

ARCHIBALD MACDONALD, aged 56: admitted into Stephen Ward, on *Sept. 19, 1842*, under Mr. Key: a sailor, native of Jamaica; not married; of previous good health, but of very irregular and intemperate habits. Has been a very strong man, of dark complexion, with curly woolly hair; has an unusually small pelvis, but the genital organs are remarkably developed. It appears that three years and a half ago he first felt an uneasiness in passing his water, and then he went on board the Dreadnought Hospital Ship: a bougie was passed for him continually for three months, when he felt greatly

relieved, and went out on another voyage; but so soon as he became exposed to damp and cold he had a return of his former symptoms, but not so violent. He frequently could only pass his water by drops; and was often called up as many as twelve times in the night, and then had much straining. He came to the surgery on the 19th, suffering under retention. A catheter could not be passed, and he was put into the warm-bath. He had an irregular pulse, and a *bruit* on the first sound of the heart.

*Sept. 20.* Passed his urine in small quantities since the bath; but the stricture remains impervious.

*22.* Mr. Key attempted to pass a catheter, but would not use much force on account of the unyielding nature of the stricture. Ordered,

Vin. Ant. Pot. Tart. ʒss. Vin. Colch. m xv. ex Dec. Sarsæ, t. d.  
Pil. Ant. Op. Fort. o. n.

Hirudin. xx. perinæo.—No catheter to be used.

*Oct. 12.* Upon the whole, is much improved: the catheter was passed down to the stricture: his water comes away without pain, and in a small stream.

*24.* Stricture very much improved; No. 3 passes easily.

*Nov. 5.* No. 5 now passes into the stricture, but not quite through it.

*15.* Very feverish; pulse 110 and hard; has symptoms of bronchitis; thick mucous expectoration; *râle sonore* and *muqueuse*; furred tongue; hot skin.

Vin. Ant. P. T. ʒss. Tinct. Digit. m x. ex Mucil. Acac. bis die.

*16.* Fever and dyspnoea increased; and he died at half-past 11.

No post-mortem examination could be obtained.

#### CASE 39.

##### *Retention of Urine—Relieved.*

JAMES PACK, aged 43, admitted into Stephen Ward, on Oct. 16, 1842, under Mr. Morgan. Has had stricture and difficult micturition, with occasional retention, for nearly four years, supervening on gonorrhœa, for which he took large and continued doses of copaiba, and used injections. Has passed his water in a small stream ever since. Mr. Cock had relieved him two or three times in 1840. He came to the hospital about 3 o'clock A.M., suffering under retention, which came on the previous evening after drinking largely of beer. The dresser passed No. 9 catheter, and was stated to have succeeded in obtaining some water from the bladder: he had thirty drops of tinct. opii given him. He however returned at 10 o'clock P.M., complaining of much pain, and still suffering from retention. A catheter was passed, but no water

drawn off: he was ordered a warm-bath. Mr. Cock saw him at 11 o'clock, when he was suffering from retention, with a tolerably full but not greatly-distended bladder. On attempting to pass a catheter, it immediately slipped through a false passage, and passed between the prostate and rectum. A great deal of pain and bleeding had accompanied the former introduction. Ordered, calom. gr. ij. opii gr. ij. stat.; and to foment the perinæum.

At 3 o'clock P.M., Mr. Cock succeeded, without much difficulty, in introducing No. 4 into the bladder, and drew off between three and four pints of dark urine. Ordered,

Tinct. Ferri Sesquichlor. et Tinct. Hyos. ex Mist. Camph.

Oct. 17. Passes his water freely and in a full stream, without any difficulty: has voided a considerable quantity of pieces of coagulated blood. He left the hospital in the afternoon.

Called on Mr. Cock on Oct. 23. Has passed his water in a good stream, without any difficulty, ever since: has continued to take tinct. ferri sesq.

Dec. 4th. Passed No. 6 catheter with perfect ease.

#### CASE 40.

##### *Stricture—Fistulæ—Numerous Sinuses—False Passage— Extravasation, &c.—Death.*

THOMAS ASHMOLE, aged 41: admitted into Billet Ward, under Mr. Cock, on October 27, 1842: has been a groom, and seems to have led a somewhat intemperate life. Seven years ago contracted a gonorrhœa, and did not get rid of the discharge for years: he used no injections, but was severely salivated, and took a great quantity of copaiba, &c. He then began to pass his water in a diminished stream; and on one occasion, after drinking freely of ale, had complete retention, but was relieved, without difficulty, by the catheter. He continued well until three-and-a-half years ago; when the stream became so small, and was accompanied with so much difficulty of expulsion and straining, that he went into a London hospital; where, after staying six months, and undergoing a course of bougies, a catheter was passed into his bladder. Soon afterwards he left the hospital, relieved of his symptoms; but returned in a month, as an abscess had formed in the perinæum, which he attributed to an awkward attempt to pass an instrument just previous to his leaving. The abscess was opened; and a fistulous passage became established, which allowed more water to escape than the natural canal. In this state he again left the hospital; and continued in the same condition until the urethra gradually closed up. He was admitted into Guy's Hospital in August 1841, having passed the whole of his water through the fistulous opening for four months, and having an indurated and mis-shapen perinæum.

Attempts were made to pass an instrument, but without success, until a month after admission, when a catheter was forced into his bladder, and was passed several times after that: he then passed his water, with tolerable ease, through the natural canal. He continued improving for several weeks, but then again relapsed into his former condition. A urinary abscess formed, communicating with the rectum, and was accompanied with severe local and constitutional symptoms. This was relieved by a copious discharge of pus, either from the anus or from the fistulæ about it. Fresh abscesses formed, which were relieved by his passing a considerable quantity of pus from time to time through the urethra. He now passed his water, partly by the anus, partly through two perinæal fistulæ, and partly by the penis; and frequently flatus from the rectum discharged itself through all the four passages. After a careful and gradual course of catheterism, the natural canal became so far re-established as to allow a moderate-sized catheter to pass easily, and the water to flow through the penis. The man then learnt to pass an elastic catheter for himself; and in that way, by drawing off his water, prevented it from passing through the fistulæ. However, he injured himself some weeks afterwards in introducing it, and had set up deep suppuration, and discharge of pus from different sinuses: there was a sinus opening three inches above the pubes.

In June 1842 his health became improved, and he continued to pass a catheter for himself every time he had desire to micturate: the fistulæ in perinæo and above the pubes still existed, but were in an improving state. In August, an urinary cavity formed at the lower part of the scrotum, into which the water found its way, and thence into numerous sinuses. Mr. Cock opened this, which was followed by considerable improvement. The different sinuses began to heal; and he was able to pass nearly the whole of his water through the penis, although he continued to draw it off by the catheter. He left the hospital in September.

On his re-admission, in the following month, viz. Oct. 27, 1842, his health had considerably improved; and he now passed his water easily, and in a good stream, with an occasional slight escape through some of the perinæal fistulæ and the one above the pubes; all of which, however, were losing their induration, and seemed inclined to close.

Oct. 29. Mr. Cock introduced a moderate-sized elastic catheter without much difficulty; and laid open a small urinary abscess on the fore-part of the scrotum, into which the urine seemed to find its way.

Nov. 10. Has continued to improve; and passes his water in a very good stream, and with very little escape from the fistulous openings in the perinæum and scrotum. Occasionally, his water will pass

involuntarily, especially in the night when he is asleep. His urethra admits a good-sized catheter; although there is some difficulty in passing it, on account of the unyielding nature of the canal, and the adhesions it has contracted to surrounding parts.

Continued much in the same state until February 1843, when, during a temporary absence of a few days from the hospital, and exposure to very severe weather, all his symptoms became aggravated.

*March 5.* Mr. Cock introduced a grooved staff into his bladder, and cut freely into the urethra through the perineum, laying open the canal to the extent of full an inch. A female catheter was passed, and left in.

20. His local symptoms are all diminished, the rigors gone, and the local tumefaction subsided. There still, however, seems to be some slight occasional infiltration into the sinuses. Passes his water through the wound, and an elastic catheter is occasionally introduced that way. His constitution has given way: there is no healthy action: urine coagulable. He gradually sunk, without any decided symptoms, and died on April 11th.

**SECTIO CADAVERIS.**—The liver was large, altered in texture, and fatty: the kidneys mottled, and extensively degenerated in their cortical texture. Some tubercles in the lungs.

The bladder was small, and of a triangular form; the lining membrane of a dusky red, flocculent, and presenting plicæ and processes like valvulæ conniventes: the coats immensely thickened, but more from interstitial deposit than from hypertrophy of the muscular fibre, which was pale, degenerated, and in many parts hardly to be distinguished. The whole of the cellular tissue of the true pelvis was converted into a hard dense mass, by chronic inflammation, and a solid deposit which surrounded the bladder, rectum, ureters, iliac vessels, &c., thus filling the pelvis with an indurated mass of adventitious structure. The recto-vesical pouch was obliterated by adhesion between the peritoneal surfaces of the rectum and bladder, nearly as high as the fundus of the latter, where the adhesions produced an acute angle and a constriction of the calibre of the intestine. The under surface or wall of the urethra, from the bulb to the bladder (including the prostatic portion of the canal), was nearly destroyed or wanting; the only remains being a number of bridles or bands of membrane, which extended from side to side at irregular distances, and separated the line of the canal from a large sinus or cavity, which, commencing opposite to the bulb, had extended between the urethra and rectum, through the prostate, and terminated in a pouch of considerable size between the bladder and the rectum. This sinus divided the prostate into two lateral halves, the veru-montanum alone



remaining in the median line, attached slenderly to the bladder and urethra, but separated from its attachments on either side. From this sinus (which, together with the pouch into which it terminated, was evidently of long standing) branched off innumerable smaller sinuses, forming a perfect warren of tortuous canals into the scrotum and perinæum, while others burrowed extensively into the solid adventitious texture that occupied the true pelvis. The inter-recto-vesical pouch had three communications with the rectum; two below the angular contraction already noticed, and one above it. It also sent out tortuous sinuses, on either side, into the solid tissues of the pelvis. It communicated freely with the neck of the bladder on each side of the veru-montanum. The last three or four inches of the urethra could hardly be said to exist, as its line was merely separated from the sinus or cavity behind it by the bands or bridles already mentioned. It is probable, that when the catheter was introduced the instrument passed through the sinus, and, being carried on, might either enter the bladder or the recto-vesical pouch, both of which probably formed a receptacle for the urine. The incision which had recently been made into the perinæum had freely entered the large sinus through which the staff had probably been carried into the bladder or recto-vesical cavity at the time of the operation. (Vide Plate.)

The origin of all this mischief, no doubt, was the forcible introduction of a catheter into his bladder soon after his first admission into the hospital in Aug. 1841; the instrument making a false passage behind the urethra, and entering the bladder through the prostate. This was succeeded, as the subsequent symptoms proved, by infiltration and abscess between the bladder and rectum, by ulceration into the latter, fistulous sinuses into the cellular tissue of the pelvis, perinæum, scrotum, pubes, &c., and finally by death.

#### CASE 41.

##### *Stricture—Relieved.*

EDWARD MALLOUGH, aged 34: admitted into Philip Ward, under Mr. Key, on October 29, 1842: a carver and gilder; married at 21. Has been a widower six years, and has drunk freely since. Never had any urinary difficulty till four years ago, when he contracted gonorrhœa, and took immense quantities of copaiba and cubebs: a gleet continued for two years, accompanied with gradual diminution in his stream of water. For the last two years has had all the symptoms of decided and permanent stricture. Nearly a year ago a urinary abscess formed in the perinæum, and burst spontaneously; since which he has passed more or less of his water through the opening. Never had any advice or assistance until he came to the hospital. Has been a patient in the surgery some time, where much irritation has been excited by the use of bougies.

*Dec. 12.* By attention to the bowels, occasional warm-bath, internal administration and suppositories of opium, and then by a careful use of instruments, especially the catgut bougie, a passage has been effected into his bladder, and he is now wearing No. 3 elastic catheter. His stream is much improved, and all his symptoms subsided: a small escape only takes place through the fistulous passage. From this time the size of the catheter was gradually increased; being left in, after each introduction, for some time.

On *Dec. 31*, a No. 9 was passed with some little difficulty: the stricture, however, is now tolerably cured.

Left the hospital on January 2, 1843.

#### DESCRIPTION OF PLATE.

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THE plate represents the parts removed from Thomas Ashmole (Case 40), including the bladder, the greater part of the urethra, and a portion of the adventitious structure in which they were involved. The bladder and urethra have been laid open along their anterior wall, so as to display the disorganized and reticular state of the under part of the canal, which, in fact, consisted merely of bands or bridles separating it from the excavation or sinus which extended behind the bulbous, membranous, and prostatic portions of the urethra, and terminated in the inter-recto-vesical cavity, of which an account has been given in the post-mortem examination.



W. Hurst del et lith

M & N Habert, lith Printers.



**LIST**  
**OF**  
**GENTLEMEN EDUCATED AT GUY'S HOSPITAL,**  
**WHO HAVE BEEN ADMITTED**  
**MEMBERS OF THE COLLEGE OF SURGEONS,**  
**BACHELORS OF MEDICINE IN THE UNIVERSITY OF LONDON,**  
**AND MEMBERS OF THE APOTHECARIES' HALL,**  
**FROM OCTOBER 1842, TO SEPTEMBER 1843.**

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**College of Surgeons.**

**OCTOBER 1842.**

Mr. David Thacker Lewis. — Arthur G. Purchas. — Thomas Peat.		Mr. C. Bond. — R. W. Woolcombe. — R. Barnes.
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**NOVEMBER.**

Mr. John Thompson. — C. E. Prothero.		Mr. Richard Jones. — William Simpson.
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**DECEMBER.**

Mr. C. J. Farr. — R. Haynes. — G. Pycroft. — G. E. M'Laughlin. — Martindale Ward.		Mr. C. P. Daniell. — G. Newstead. — H. Curless. — C. Evans. — W. A. Rackham.
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**JANUARY 1843.**

Mr. Lewis Fowle. \ — R. A. Varicas. — H. W. Reynolds.		Mr. R. E. Lutley. — A. Featherstonhaugh. — S. Singleton.
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**FEBRUARY.**

Mr. James Vincent. — Charles A. Aikin. — A. L. T. Cooke.		Mr. A. C. Ayres. — J. N. Morse.
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**MARCH.**

Mr. J. Shaw.

APRIL.	
Mr. W. Millington.	Mr. R. Tebbitt.
MAY.	
Mr. F. Sopwith.	Mr. H. Willatts.
— R. N. Rubidge.	— C. H. Brooking.
— W. W. Wildey.	— J. Eddison.
— W. B. Kellock.	— A. Grottreux.
— Charles Hall.	— T. Willis.
— T. B. Cowherd.	— W. M. Pinder.
— R. B. Yeates.	— H. Dixon.
— C. L. Prince.	— W. C. Small.
— J. Sykes.	— W. W. Kershaw.
— E. Armstrong.	
JUNE.	
Mr. T. B. Stone.	Mr. E. Dodd.
— F. H. Hewitt.	— P. W. Thompson.
— H. W. Pain.	
JULY.	
Mr. T. Marshall.	Mr. T. L. Phillips.
AUGUST.	
Mr. Walter Clegg.	Mr. A. Poland.
— F. Smith.	— W. F. Coles.
— G. Buckell.	— J. Beedell.
— J. Hunt.	

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**University of London.**

NOVEMBER 1842.	JULY 1843.
SECOND EXAMINATION.	FIRST EXAMINATION.
1st Division.	1st Division.
Mr. John Dunn. <sup>(1)</sup>	Mr. R. R. Rubidge.
— J. W. C. Pennell. <sup>(2)</sup>	
— W. W. Swayne. <sup>(3)</sup>	

<sup>(1)</sup> Mr. Dunn was classed second in Comparative Anatomy; fourth in Medicine; and fourth in Surgery.

<sup>(2)</sup> Mr. Pennell obtained the first honour (Medal) in Surgery; and stood fifth in Medicine.

<sup>(3)</sup> Mr. Swayne obtained the first honour (Medal) in Midwifery; was bracketed first for Medicine (Medal); and second for Surgery.

**Apothecaries' Hall.**

**SEPTEMBER 1842.**

Mr. J. Wilkins.  
— R. Colgate.

Mr. A. G. Purchas.  
— James Vincent.

**OCTOBER.**

Mr. S. S. Perkins.  
— T. Peat.

Mr. David Thacker Lewis.

**DECEMBER.**

Mr. Richard Jones.

**APRIL 1843.**

Mr. T. B. Stone.  
— William H. Pettigrew.  
— H. H. Parrott.  
— W. Peskett.

Mr. W. Simpson.  
— J. J. Sparrow.  
— John Thompson.

**MAY.**

Mr. C. Bond.  
— C. Hooper.  
— H. M. Holman.

Mr. Bell.  
— S. R. Robinson.

**JUNE**

Mr. A. C. Ayres.  
— R. E. Lutley.

Mr. J. Beedell.

**JULY.**

Mr. W. N. Spong.

**SEPTEMBER.**

Mr. J. Gunthorpe.



## MEDICAL SCHOOL OF GUY'S HOSPITAL.

At the close of the Session 1842-43, the following Prizes, Medals, Certificates of Distinction, with the Diploma of the Physical Society, were awarded.

### PRACTICE OF MEDICINE.

George Padley, Swansea, South Wales ..... Gold Medal.  
Walter Clegg, London..... Silver Ditto.

### MATERIA MEDICA.

John Braxton Hicks, Lymington, Hants..... Gold Medal.  
Daniel Hooper, Bermondsey, London..... Silver Ditto.  
Spence Ramskill, Clapham ..... Certificate.

### CHEMISTRY.

Samuel Osbourne Habershon, Romerham, Yorkshire. . Prize.  
Daniel Hooper, Bermondsey, London..... Certificate.  
Spence Ramskill, Clapham ..... Ditto.

### PRACTICAL CHEMISTRY.

John Braxton Hicks, Lymington, Hants..... Prize.

### ANATOMY (Senior Division).

John Turner Caddy, Bideford, Devon..... } *Æquales*—Prize.  
Henry Isaac Fotherby, Louth, Lincoln ..... }

### ANATOMY (Junior Division).

William Tickell, East Looe, Cornwall ..... } *Æquales*—Prize.  
Frederick Whitbourne, Epsom ..... }  
John Charles Lory Marsh, London..... Certificate.

### OPERATIVE ANATOMY.

Thomas Busher Cowherd, Kendal ..... Prize.

### PATHOLOGICAL ANATOMY.

Alfred Poland, London..... Silver Medal.  
Richard Nathaniel Rubidge, Albany, Cape of Good Hope, Ditto.

### SURGERY.

William Wayland Kershaw, London ..... Instruments.

### OPHTHALMIC SURGERY.

William Wayland Kershaw, London ..... Instruments.  
Frederick Hughes Hewitt, Clapham ..... Silver Medal.  
Walter Clegg, London ..... }  
William Falkingham Footitt, Southwell, Notts. .... } Certificates.  
Henry March Webb, Barnstaple ..... }

### MIDWIFERY (Senior Division).

Walter Clegg, London ..... Instruments.  
Alfred Poland, London ..... Certificate.

### MIDWIFERY (Junior Division).

Henry March Webb, Barnstaple ..... Instruments.  
William Falkingham Footitt, Southwell, Notts..... Certificate.

**PRACTICAL OBSTETRICY.**

George Hardy, Northampton ..... Certificate.  
George Cotton, Northampton ..... Ditto.  
Frederick Hughes Hewitt, Clapham ..... Ditto.

**MEDICAL PHYSICS.**

George Ayton, Kenilworth ..... Silver Medal.  
Daniel Hooper, Bermondsey, London ..... Certificate.

**MEDICAL JURISPRUDENCE.**

Alfred Poland, London ..... Prize.  
George Frederick Wills, Crewkerne, Wales ..... Ditto.  
Thomas Marshall, London ..... Ditto.

**CLINICAL REPORT SOCIETY.**

Alfred Poland, London ..... Med. Certificate.  
William Tiffin Iliff, London ..... Surgical ditto.

**PUPILS' PHYSICAL SOCIETY.**

Alfred Poland, London ..... Prize.

**PHYSICAL SOCIETY.**

Alfred Poland, London ..... Prize.

**ERRATA.**

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**P. 188. *for* p. 129, *read* p. 181.**

**P. 298. *for* Plate I, *read* Plate I<sup>A</sup>.**

**P. 300. *for* Plate I<sup>A</sup>, *read* Plate I.**

**In making up the Volume, the Binder is requested to place Plate I<sup>A</sup>. to face p. 298 ; and Plate I. to face p. 300.**

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